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ABSTRACT

One-third of the report explains the nature of the project, its development, administration, and the details of the individualized instruction system. The project goal of developing an individualized cluster curriculum in occupational education is described. The five phases of planning, development, pilot testing, revision, and dissemination which lasted from October 1971 to June 1974 are outlined. The development of the individualized instructional system consisting of minicourses, automated instruction, learning activity packages, task packages, and a centralized learning resources center for each of the six instructional programs (typing, distributive education, masonry, carpentry, metals, and drafting) is described. Conclusions and recommendations concerning both the conduct of the project and the instructional system itself are presented. The remaining two-thirds of the report is composed of appendixes which provide sample minicourse descriptions, task packages for each of the six instructional programs, a smaple page from the competency survey form, sample competency statements, a sample unit task package, a unit test, an instructor's performance checklist, a student progress chart, a vocational skill list, a student survey form, and a staff development plan. Each task package includes rationale, objectives, learning activities, and learning practice. (JR)

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OCCUPATIONAL EDUCATION RESEARCH PROJECT FINAL REPORT
Vocational Education Amendments of 1968
Title I - Part C - Sec 131 (b)

INDIVIDUALIZED INSTRUCTION IN OCCUPATIONAL EDUCATION
(THE SANFORD PROJECT)

C. Everette Bradley, Project Director

Sanford Central High School
Sanford-Lee County Schools
Sanford, North Carolina

June 1974

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FOREWORD

This report is intended to serve as a descriptive summary of an occupational education research project conducted at Sanford Central High School during the years 1971 through 1974. The research project was descriptively titled "The Development and Implementation of an Individually Scheduled, Cluster Curriculum in Occupational Education" but, in common usage, quickly became known as "The Sanford Project".

The report itself is divided into two basic categories. One category speaks to administration of the project - funding, subcontracts, personnel, overall design, etc., while the other category concerns itself with the instructional system and curriculum materials developed during the project. Two major audiences are intended to be served. Administrators, planners, and researchers should concentrate primarily on the administrative aspects while teachers and curriculum developers will want to review primarily the comments on the instructional system.

By necessity, this report does not contain all the curriculum materials developed during the project. For instance, a complete single set of the student task packages consumes more than 9,000 printed pages. However, examples are included in the appendix of this report and complete copies are available through the ERIC system, with a limited number of hard copies available through the Occupational Research Unit of the North Carolina State Department of Public Education.

ACKNOWLEDGEMENTS

Many persons, throughout the duration of the three-year project, have made significant contributions to the research effort. An inherent danger in acknowledging specific individuals is that key figures in the research effort will be overlooked. Of the many persons who contributed directly or indirectly, the following are singled out for special recognition.

The teachers and administrators at Sanford Central High School, including:
Ray Backlund, Learning Center Manager
Roy Cox, Carpentry Instructor
Kenneth Thomas, Machine Shop Instructor
Riley Godley, Drafting Instructor
William Richardson, Masonry Instructor
Carolyn MacDonald, Typing Instructor
John Rumbold, Drafting Instructor and
George W. Seagraves, Principal
are to be commended for their enthusiasm and effort beyond the call of duty. Without them what sounded good in theory would never have become a reality.

Special thanks are also extended to members of the project advisory committee whose membership included Dr. William McIntosh, Mr. M. O. Phillips, Mr. V. B. Hairr, Mr. Claude Eldridge, Dr. Walter Cox, Dr. Joe Clarey, Mr. W. W. McClure, Mr. Jesse Clemmons, Dr. J. F. Hockaday, Mr. Kenneth H. Brinson, Mr. Richard Stock, Mr. Robert L. Mooneyham, Mr. John Huffman, Mr. George Seagraves, and Mr. Edward Alderman.

A very special thanks is also extended to the project secretary, Mrs. Charlotte Strickland, and to typist and aide, Mrs. Patsy Mansfield.

SUMMARY

The overall goal of this developmental project in Occupational Education was to design and structure the high school curriculum so that students have flexibility in scheduling and sequencing the instructional modules necessary to prepare them for their career objective. Individualized instruction is operationally defined as any system of instruction that permits (1) entry at any point in the learning sequence commensurate with the student's level of achievement, regardless of time (2) individually-paced progression through a sequence of learning experiences, and (3) exit at any point commensurate with the student's career objective, regardless of time.

Four mechanisms for individualizing instruction were employed in the project; namely, mini-courses, automated instruction, learning activity packages, and task packages. Emphasis throughout the project was on the development of the task packages as the primary mechanism to individualize instruction. The instructional system also utilized a centralized Learning Resource Center.

In order to maintain flexibility and to permit tailoring an educational plan for an individual student, the courses have either a completely individualized instructional system or a composite number of mini-courses. The ideal system would, of course, include individualized instruction in all areas. However, mini-courses provide flexibility in that the student may move to a mini-course under another course cluster (aside from his major interest), which is taught by another instructor, to receive necessary auxiliary training within a nine-week time frame.

Six instructional programs are now utilizing individualized instructional systems. One program was purchased from Automated Instruction for Typing; another instructional system, in Distributive Education, was developed in a contract with a State University; and four systems were developed in a contract with the RCA Corporation in the areas of Masonry, Carpentry, Metals, and Drafting.

The commercially produced instructional system in the area of Typing includes an 8mm movie with sound track for teaching the keyboard and instructional cassette tapes for letter response and word response for the development of speed and accuracy. The typing instructor worked during the summer developing instructional packages to incorporate production typing into this system.

A contract with UNC-G involved North Carolina in a ten-state consortium for the development of Learning Activity Packages in the area of Distributive Education.

An Ad Hoc group of twelve DE teachers under the direction of the teacher training staff at UNC-G worked during the summer developing about 100 packages. Each of the other states produced an equal amount. No multimedia were developed with the Distributive Education materials.

A contract with the RCA Educational Systems Division helped develop individualized instructional programs in four areas. These include Masonry, Carpentry, Metals, and Drafting. In this agreement RCA supplied the curriculum specialists who wrote the materials, and the project provided the personnel for typing, printing, collating, and stapling the instructional packages. Instructors were used to develop multi-media in the form of sound-slide programs to go with the instructional packages that were written.

An individualized instructional sequence was developed in each of the four areas on the competencies necessary to enter the specific trade arrived at by the state curriculum guide, instructors, state staff, RCA Curriculum Specialists, and the local craft committee. After the competencies had been determined, behavioral objectives were written for each competency. Then an instructional package was developed which offered the student a guide and the necessary ingredients to achieve the objectives for each competency.

CHAPTER I. INTRODUCTION AND OVERVIEW

Introduction

During the period of October, 1971 through June, 1974, Sanford Central High School, in cooperation with the Occupational Research Unit of the State Department of Public Education, has engaged in an extensive research and development project whose overall goal is to develop and implement an individualized, cluster curriculum in occupational education.

The overall objectives of the research project were:

1. To identify and describe occupational clusters for general and specific instruction based on the projected employment opportunities within the school's county and multi-county planning area.
2. To design and implement a curriculum that provides students flexibility in scheduling and sequencing the instructional modules necessary for their career plans.
3. To design, staff, and implement a Learning Resource Center as an integral part of each occupational cluster.
4. To develop and disseminate programmed materials, audio-visual learning aids, and other instructional resources that are needed either in the occupational clusters or in the Learning Resource Center.

Through a system of individualized learning programs, courses, and mini-courses, occupational education is available to all students without such traditional barriers as length of time required for completion and grade-level prerequisites for enrollment. Occupational education is presented in two dimensions: (1) exploratory, to introduce the student to an occupational area in which he may choose to specialize, and (2) specialized, to allow the student to develop fully the skills necessary for entrance into his chosen field in the world of work. The courses in occupational education are characterized by such features as flexible scheduling, individualized learning, instructional units, independent study, and the facilities of a Learning Resource Center, which provides audio-visual and other instructional aids. These allow the student to proceed at his own pace, and, on the basis of suitable testing materials and procedures, to enter, exit, or by-pass a portion of the course as his knowledge and performance levels indicate. The occupational courses, themselves, are oriented to the local employment opportunities in the Sanford, Lee County, and multi-county areas.

Definitions of Curriculum

Definitions of curriculum, for the purposes of this report, should be helpful in establishing a baseline of communication. Robert M. Gagné (1969) reviewed recent developments, methods, approaches and definitions in curriculum. While he found merit in the descriptions offered by various contributors to the AERA monograph series on curriculum evaluation, he preferred the more specific definitions included in his 1965 book. He stated that:

> A curriculum is a sequence of content units arranged in such a way that the learning of each unit may be accomplished as a single act, provided the capabilities described by specified prior units (in the sequence) have already been mastered by the learner.

Gagné further clarified his definition by stating that:

> A curriculum is specified when (1) the terminal objectives are stated; (2) the sequence of prerequisite capabilities is described; and (3) the initial capabilities assumed to be possessed by the student are identified.

Relevant, also, to the project design and reflected in recent reports on curriculum development (Ullery 1969) is the emphasis Gagné has placed on well engineered and well managed development. Gagné (1969) states that:

> Curriculum design can be, and probably should be, based firmly upon the kind of empirical evidence that can come from successive tryouts and systematic testing.

The importance of this statement and the impact such an approach has had on systems type curriculum development and evaluation must be understood. It is the keystone not only to the developmental process but the evaluative process.

Hilda Taba (1962) defines curriculum development in a fairly broad way by including:

> (1) diagnosing educational needs; (2) formulating objectives; (3) selection of content; (4) organization of content; (5) selection of learning experiences; (6) organization of learning experiences; and (7) determining the ways and means of evaluating effectiveness of what is taught.

Taba seems to be in general agreement with Gagné.

F. Coit Butler (1967) referred to Gagné frequently in a manual prepared for Job Corps instructional systems development. Butler defined training systems as:

> . . .a series of interrelated, interacting, precisely controlled learning experiences that are designed to achieve specific training objectives; but organized into a unified, dynamic whole which is responsive and adaptive to the individual trainee while fulfilling specific job-relevant training criteria.

Butler went on to describe the process of curriculum development as a vigorous measurement of results in comparison to the specific performance objectives.

Site Description

Lee County is located in the center of North Carolina on the "fall line" which divides Piedmont and Coastal Plain. It is one of the smallest counties in the State in land area with 255 square miles. Lee county population in 1970 was 30,467.

Sanford is the only major town, located in the approximate center of the county. Sanford has many varied industries giving it unusual stability. The population of Sanford in 1970 was 11,716.

Sanford Central High School is a comprehensive high school with an enrollment of 1800 in grades 9-12. It enjoys a large campus style facility located on a 52 acre site outside the business district of the town. The administrative and teaching staff number 80. The school is departmentalized with nine departments.

These departments include Fine Arts (3), Language (16), ROTC (3), Mathematics (8), Science (8), Social Studies (9), Guidance (2), Physical & Health Education (3) and Occupational Education (26). (The number in paraenthize following the department name indicates personnel assigned.)

The curriculum is comprehensive in an effort to meet the needs of students. Curriculum planning decisions are based largely on where the students go after graduation. The follow-up report for school year 1972-73 is as follows:

College & Universities 29%
Jr. & Community College & Technical School 17%
Enter Labor Market 40%
Military Service 6%
Others 4%

The occupational courses offered at Sanford Central High School are listed in Figure 1.

Grade 9	Grade 10	Grade 11	Grade 12
Introduction to Business	Typing I Shorthand I Bookkeeping I Business Math	Typing I Typing II Shorthand I Bookkeeping I Clerical Off. Practice Advertising & Salesmanship Distributive Education	Typing II Shorthand II Clerical Office Practice Clerical Office Occupations Distributive Education
Introduction to Home Economics	Home Ec. II	Foods & Employment Commercial Sewing	Foods & Employment Commercial Sewing Industrial Co-op Training Distributive Education
		Health Occupations I	Health Occupations I Health Occupations II
Introduction to Agriculture	Agriculture II	Agriculture Co-op Training	Agriculture Co-op Training
Introduction to Industrial Education	Introduction to Industrial Ed. Drafting I Machine Shop I Carpentry I Bricklaying I	Surveying I Drafting I Mechanical Drafting II Architectural Drafting Machine Shop I Machine Shop II Carpentry I Carpentry II Bricklaying I Bricklaying II	Surveying I Industrial Co-op Training Mechanical Drafting II Architectural Drafting Machine Shop II Carpentry II Bricklaying II
Occupational DARE Communication Lab Math Lab	Occupational DARE Communication Lab Math Lab	Occupational DARE Program Cooperative Occupation Training	Occupational DARE Program Cooperative Occupation Training

Figure 1. Course offerings in occupational education at Sanford Central High School

The occupational courses enjoy a very positive image among the student body. Out of a total school enrollment of 1800 there are 1000 students enrolled in occupational courses.

This high enrollment can be attributed to the fact that occupational courses being offered are meeting a felt need of the students and the community. The occupational faculty continually strive for excellence in their respective courses.

Funding Arrangement

The three-year project was supported through a combination of Federal, State, and local monies. The Federal share of project support amounted to $225,295 under Part C - Section 131(b) of the 1968 Vocational Education Amendments. These Federal monies were matched with $22,973 of State funds by the North Carolina State Board of Education. The Sanford-Lee County Board of Education provided additional support amounting to approximately $15,000 in the form of support personnel, facilities, and equipment. Total expenditures for the duration of the three-year project totaled approximately $263,268. Item expenditures for the project during the three-year period are summarized in Table 1.

Table 1. Summary of project expenditures by item.

Item	Expenditure
Personnel (including benefits)	$116,792
Materials and Supplies	23,516
Equipment	29,473
Contracted Curriculum Development	71,705
Travel	3,738
Consultants	763
Communications	1,402
Other (including facilities)	15,879
Total Expenditure	$263,268

CHAPTER II. ADMINISTRATIVE CONDUCT

Personnel

The project directly supported three full-time staff positions. Numerous other persons were involved in sub-contracts for curriculum development and in activities such as teacher in-service programs and teacher development of curriculum and supporting multi-media.

A full-time project director gave overall direction to the project. A full-time secretary was assigned to the project director and the third full-time staff person was the director of the Learning Resource Center who also served as coordinator of development of the supporting multi-media materials. Total personnel costs for the project, including employee benefits, was $116,792.

Project Design

The overall project design encompassed five distinct groups of related activities, or phases. These five phases were an orderly progression of planning, development, pilot testing, revision and dissemination. Figure 2 depicts this sequence of events.

The Planning Phase accurred between the startup date of the project and June 1972. During this Phase the project director formed an advisory group to assist in giving overall direction to the project, visited many innovative and exemplary programs in both North Carolina and the Nation, and did an extensive search of the literature in an effort to chart the general course for the project. The Planning Phase continued throughout the preliminary stages of the Development Phase.

The Development Phase began during February, 1972 and continued through September, 1972, with the major developmental work occuring during the summer months of June, July, and August. During this Phase two sub-contracts were let for the development of curriculum materials and extensive development of teacher-made materials was begun. The Learning Resource Center was designed and equipped during this Phase and a limited tryout of material was conducted during the last two months of the school year.

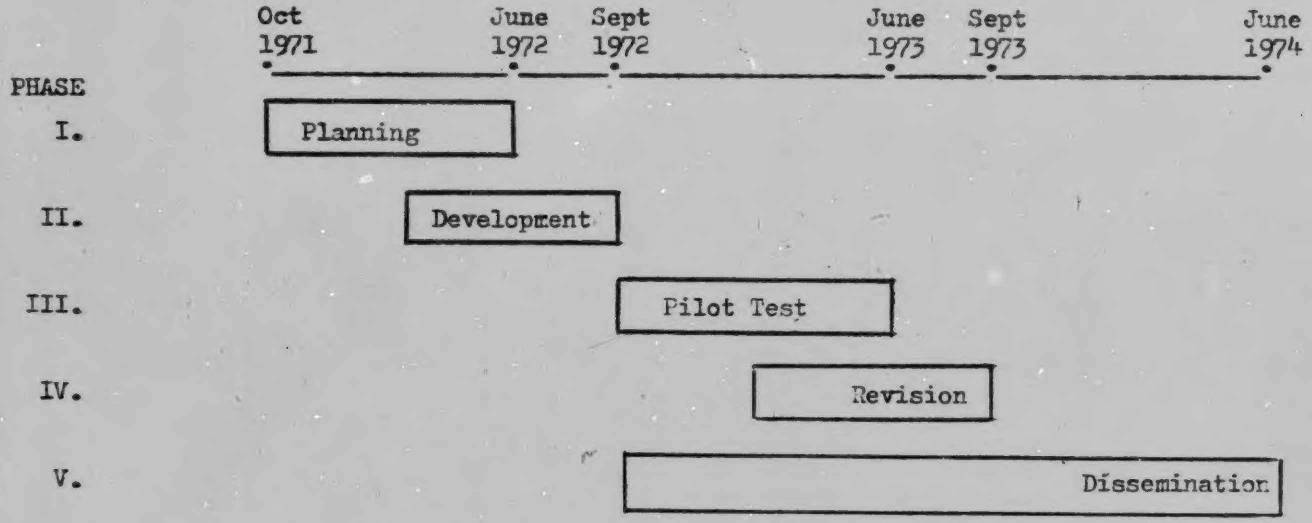

Figure 2. Overall design of the project

The Pilot Test Phase began in September of 1972 and continued throughout the 1972-73 school year. During this Phase the curriculum materials and the Learning Resource Center were utilized fully. Limited revision occurred during this Phase.

The bulk of the Revision Phase occurred during the summer months of 1973. All of the curriculum materials, including the supporting multi-media, were revised, and, in some cases, rewritten during this Phase.

The Dissemination Phase occurred primarily between June, 1973 and the ending of the project in June, 1974. Dissemination activities are described more thoroughly in the following section.

Dissemination Activities

Dissemination of products of the research project as well as periodic reports of progress of the project has been a joint undertaking of project personnel and the Occupational Research Unit. The project has employed various media in its dissemination activities to a multitude of audiences.

A. Visitors

Educators from both within and outside North Carolina have been encouraged to visit the project site for first-hand observation and a description of the project. During the project period more than 300 instructors, administrators, teacher educators, and State Department personnel have visited the project site.

B. Correspondence

Numerous individuals and agencies have corresponded with the project director. In addition to individuals and agencies in North Carolina information about the project has been mailed to agencies in twelve states outside North Carolina.

C. Presentations

A slide-tape presentation of the project was prepared and has been used on numerous occasions. In addition, numerous presentations and workshops have been conducted by project and State Department personnel. Presentations have been given at the Southwide Research Coordinating Council, the Kentucky Vocational

Teacher Annual Conference, the West Virginia Vocational Teacher Annual Conference, the Pennsylvania State University, East Carolina University, the North Carolina Trade and Industrial Teacher Annual Conference, and the annual meeting of the North Carolina Association of Researchers in Education, as well as to many other groups and organizations.

In addition, the project has conducted, sponsored, or participated in numerous workshops and institutes which served to disseminate results of the project. Included in the list are:

(1) Workshop on Individualized Instruction - Rutgers University.
(2) Summer Institute - East Carolina University
(3) Four three-week workshops - Sanford Central High School
(4) Career Education Workshops - North Carolina State Department of Public Instruction.

D. Mass Media

The research project has also utilized the mass media for local and Statewide dissemination. The local radio station, WWGP, has sponsored three programs on the research project and the local newspaper, The Sanford Herald, has published six articles on the project. In addition the project was publicized on a thirty-minute program on Statewide educational television.

E. Demonstration Sites

The underlying philosophy of the dissemination activities of the project has been that not only would other educators be aware of project activities but that they would actually implement the positive aspect of the project. To this end, the research project conducted, in cooperation with the North Carolina State Department of Public Instruction, four three-week workshops involving 120 teachers and principals from across North Carolina, during the summer of 1973. This group of 120 was comprised of teams of teachers and administrators from 16 schools who had agreed to serve as demonstration sites during the following school year.

During the fall of 1973 project personnel provided consultative assistance to the 16 schools implementing the concept of individualized instruction. In addition, curriculum materials developed in the research project were provided to the 16 demonstration sites. In the early spring of 1974 each of the demonstration sites invited teams of teachers from three additional schools to spend one-week internship at the demonstration site. In all, by the end of the 1973-74 school year, 64 (16 demonstration schools plus 48 interning schools) schools had actively participated in the process and had implemented some of the concepts of individualized instruction as developed in the research project. The 64 schools will continue to serve as demonstration sites during the 1974-75 school year.

Staff Development

Sanford Central High School was a traditional school. In order to aquaint the faculty and staff with the new concept of individualized instruction, massive in-service efforts were undertaken. A staff development plan was devised and implemented during the summer and fall of 1972. A complete description of the staff development plan is included in Appendix P.

CHAPTER III. THE INDIVIDUALIZED INSTRUCTION SYSTEM

Instructional Program

In order to maintain flexibility and to permit customizing or tailoring a training plan for an individual student, all occupational courses have either a completely individualized instructional system or a composite number of mini-courses. The ideal system would, of course, include individualized instruction in all areas. However, mini-courses provide flexibility in that the student may move to a mini-course under another instructor, to receive necessary auxiliary training within a nine-week time frame. As an example, suppose a student in the Horticulture Cluster under the program area of Agriculture-Business and Natural Resources is studying to become a nursery worker. If his eventual goal is to operate his own nursery, he will need training in bookkeeping. Therefore, he may move to a mini-course in bookkeeping within the Clerical Cluster under the program area of Business and Office.

Each instructor serves as a counselor to the students and approves all transfers to mini-courses, taught by other instructors, which are considered essential to the students' occupational goals. Scheduled conferences are held with the students, and each student must express a serious interest before moving to another instructor for a mini-course.

Within this structural framework, the student is allowed either to generalize his occupational training or to specialize to the degree desired under the guidance of the instructors. (Sample mini-course descriptions are included in Appendix A.)

Individualized Systems

Six instructional programs are now made up of individualized instructional systems. One program was purchased from Automated Instructions for typing; one instructional system in Distributive Education was developed in a contract with the University of North Carolina at Greensboro; and four systems were developed in a contract with RCA* in the clusters of Masonry, Carpentry, Metals and Drafting.

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*RCA Education Systems, Division of Educational Development and Planning, One Cherry Hill Mall, Cherry Hill, New Jersey, 08101

An instructional system in the area of Typing was purchased from Automated Instruction. This system includes an 8mm movie with sound track for teaching the keyboard, and instructional cassette tapes for letter response and work response for the development of speed and accuracy. Minor modifications and development of instructional packages incorportated production typing into this system.

The project also funded a contract with UNC-G to involve North Carolina in a ten-state consortium for the development of instructional packages in the area of Distributive Education. A staff of about twelve people at UNC-G worked during the summer of 1972 developing about 100 packages, while each of the other states produced an equal amount.

The project also contracted with the RCA, Educational Systems Division, to help develop individualized instructional programs in four clusters. These include the areas of Masonry, Carpentry, Metals and Drafting. In this agreement RCA supplied the curriculum specialists who wrote the materials, and the project typed the materials and supplied the personnel for printing, collating, and stapling the instructional packages that were written. (Examples of task packages are included in Appendices B, C, D, E, F, and G.) The project developed multi-media in the form of sound-slide programs to go with the instructional packages that were written.

A completely individualized instructional program was developed in each of the four clusters based on the competencies necessary to enter the specific trade. These competencies were arrived at by consulting the State curriculum guide, instructors, State Staff, RCA Curriculum Specialists, and local craft committees. A sample page from the competency survey form is included in Appendix H. After the competencies had been determined and behavioralized an instructional package was developed to offer the student a guide and the necessary ingredients to achieve the objectives for each competency. (Sample competency statements are included in Appendix I.)

Each cluster area consists of a number of units. There is an instructional package for each unit which includes a Rationale, General Objective, Specific Objectives (which come from the individual task packages, or competencies packages), and the Learning Activity, which includes the list of task packages within that unit. (An example of a Unit task package is included in Appendix J.) Each task package contains a Rationale, Specific Behavioral Objective, and Learning Activity (which in most instances includes a sound-slide program developed so that a student can see and hear the instructions having to do with achieving the Objectives stated). The majority of the AV materials was presented in the 35 millimeter slide medium correlated with an audio tape cassette cued to slide advance by inaudible sounds. The Coxco sound-slide machine was used for all programs developed. The Learning Activity also includes a reading reference - specifically, reference to three or four different texts in the entire curriculum which in most instances are found on the state-adopted book list. To this point the student does all of the work in the Resource Learning Center, but at this time goes into the Learning Practice phase of the task package, which requires him to return to his shop or lab and follow the step-by-step directions in which he practices the items to assist him in achieving his objectives. Upon completion of the Learning Practice, he is referred to his instructor for an evaluation of his work and is assigned his next task package if his work has been satisfactorily completed in accordance with the standards as set up in the Objectives. All of the instructional materials are designed around behavorial objectives with terminal points at each level of competence. In effect, students are allowed to begin work precisely at the level where they need instruction and they cannot proceed to higher units until they demonstrate mastery of the unit undertaken. With the assignment of a new task package, the student returns to the Resource Learning Center and starts the cycle over again. Upon the completion of all task packages within a unit, the student is given a prepared unit test. (See Appendix K.) The test consists of theory questions including multiple choice, matching, and completion.

When appropriate, a performance test is administered in the shop or lab. Upon completion of the performance test, the student is evaluated in accordance with the instructor's checklist, (see Appendix L) which the student has in hand at the outset.

(1) Self Paced Learning

Another facet of the project is that it is allowing students to progress at their own speed. Fast learners are, in some cases, finishing the course in half the time it takes for slower students. Since it is an educational fact that all learners have varying speeds, the Sanford Research Project adequately compensates for each one's particular pacing. With the traditional time frame thrown out, students no longer have only a specific number of weeks to master a specific number of skills in order to receive a grade at the end of quarterly grading periods. The students are evaluated strictly upon obtaining or acquiring identified skills and no one is ever penalized for taking additional time to successfully master course requirements. It must be noted however, that some academic and emotional immaturity problems appeared among some of our students which resulted in the Occupational Department taking steps to insure that learning paces chosen are commensurate with ability. Figure 3 schematically depicts student progression through the learning sequence.

(2) Positive Reinforcement

In order to reinforce to a student that he is allowed to progress academically at his own pace, the system is so structured that a student never fails a test of record. By design, the written and performance tests are given not only as measurement devices but also as counseling instruments. If a student does not successfully measure up to a required skills level on the first attempt, then that unsatisfactory score is recorded temporarily, and the student is then guided to correct his errors. In this manner, if a student's performance is not up to an acceptable level, sufficient repetition for a weakness is provided allowing each student the opportunity to eventually succeed.

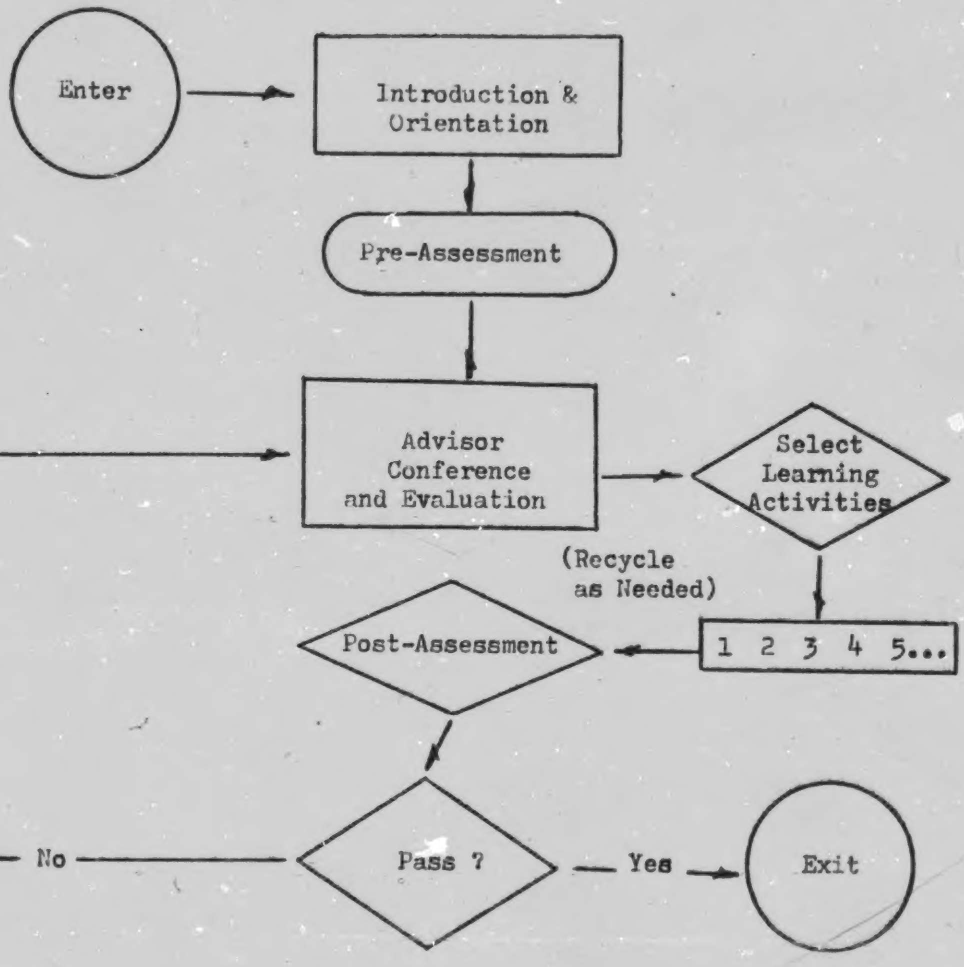
Enter
Introduction & Orientation
Pre-Assessment
Advisor Conference and Evaluation
Select Learning Activities
(Recycle as Needed)
1 2 3 4 5...
Post-Assessment
Pass ?
No
Yes
Exit

Figure 3. Student progression through the learning sequence.

(3) Individual Attention and Instruction

Each individual enrolled in these programs has the guarantee at the onset of receiving individual and personal help and attention at any time during this course. Each checkpoint or test is evaluated immediately upon completion in a one-to-one conference, or at least in small groups with the instructor.

In essence then, the Sanford project is designed to allow the students to become the master of their own education plan. If any problem should prevent them from attending class for a day, a week, or however long, the next lesson or the same lesson is always available for that student when he returns.

Each instructor must maintain a tracking chart for each student to record the individual progress. (The student progress chart used is included in Appendix M.)

The vocational skill list (Appendix N.) is the record of the competencies each student possesses upon completion of a program as verified by his instructor. This is the official record indicating what the student can do. Two copies are made for each student, one is filed in the student's permanent record and one is given to the student in the form of a folding pocket card to have available to show a prospective employer.

Physical Facilities

In this comprehensive, campus style, high school the occupational area is located on the east side of the school grounds. The drafting laboratory, metals shop, carpentry shop, and the masonry shop are located near the Learning Resource Center as indicated in Figure 4. The students travel to the Learning Resource Center for their initial individualized instruction and return to the shop or laboratory to practice the competency. The Learning Resource Center is the size of two classrooms. There are storage cabinets for equipment and extensive shelving for instructional material storage. The tables and individual study carrels in the Resource Center will seat forty students. One corner is partioned to serve as an office while another corner is partioned to serve as a conference room as illustrated in Figure 5.

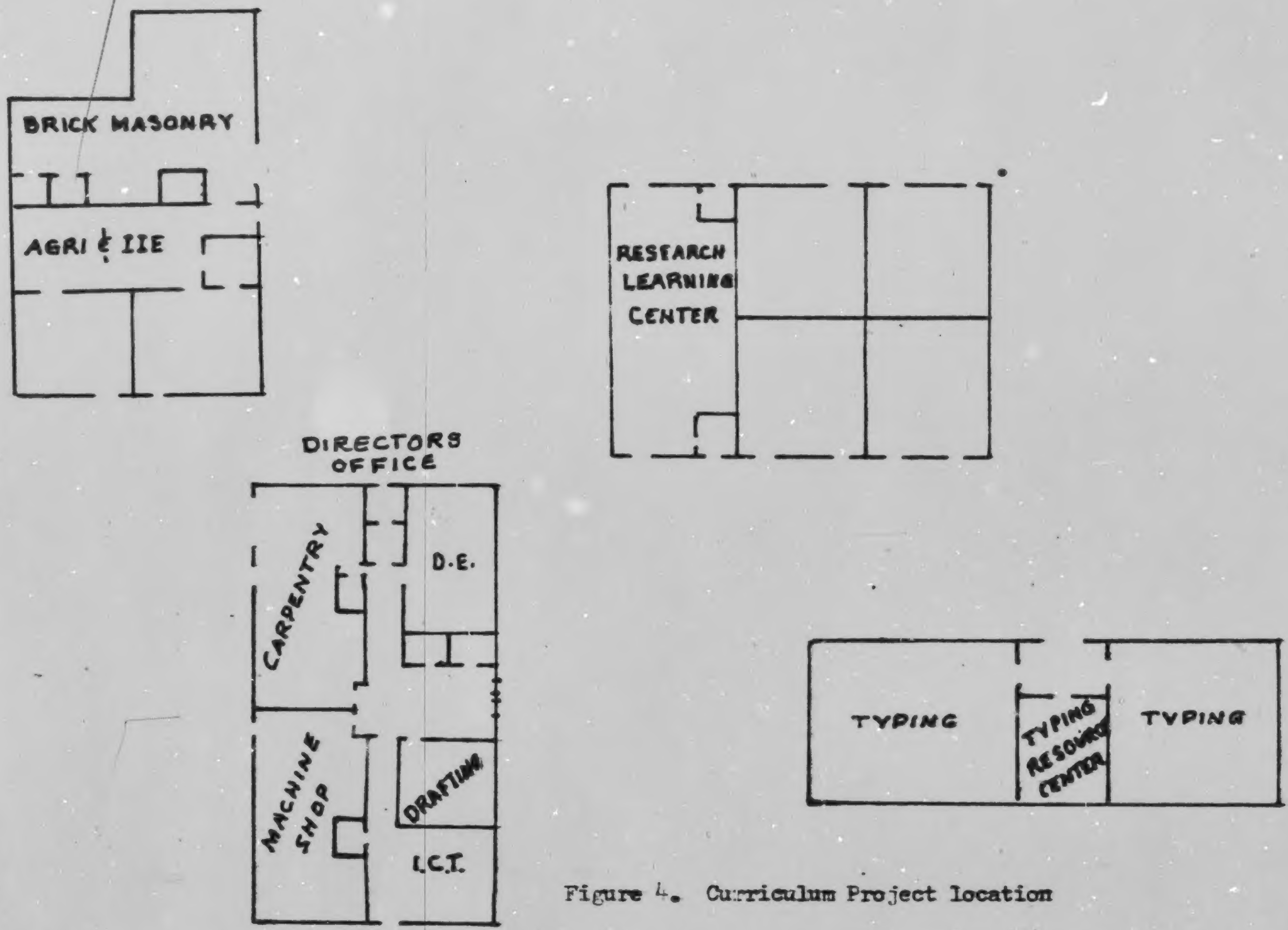
BRICK MASONRY
AGRI & IIE
RESEARCH LEARNING CENTER
DIRECTORS OFFICE
CARPENTRY
D.E.
MACHINE SHOP
DRAFTING
I.C.T.
TYPING
TYPING RESOURCE CENTER
TYPING

Figure 4. Curriculum Project location

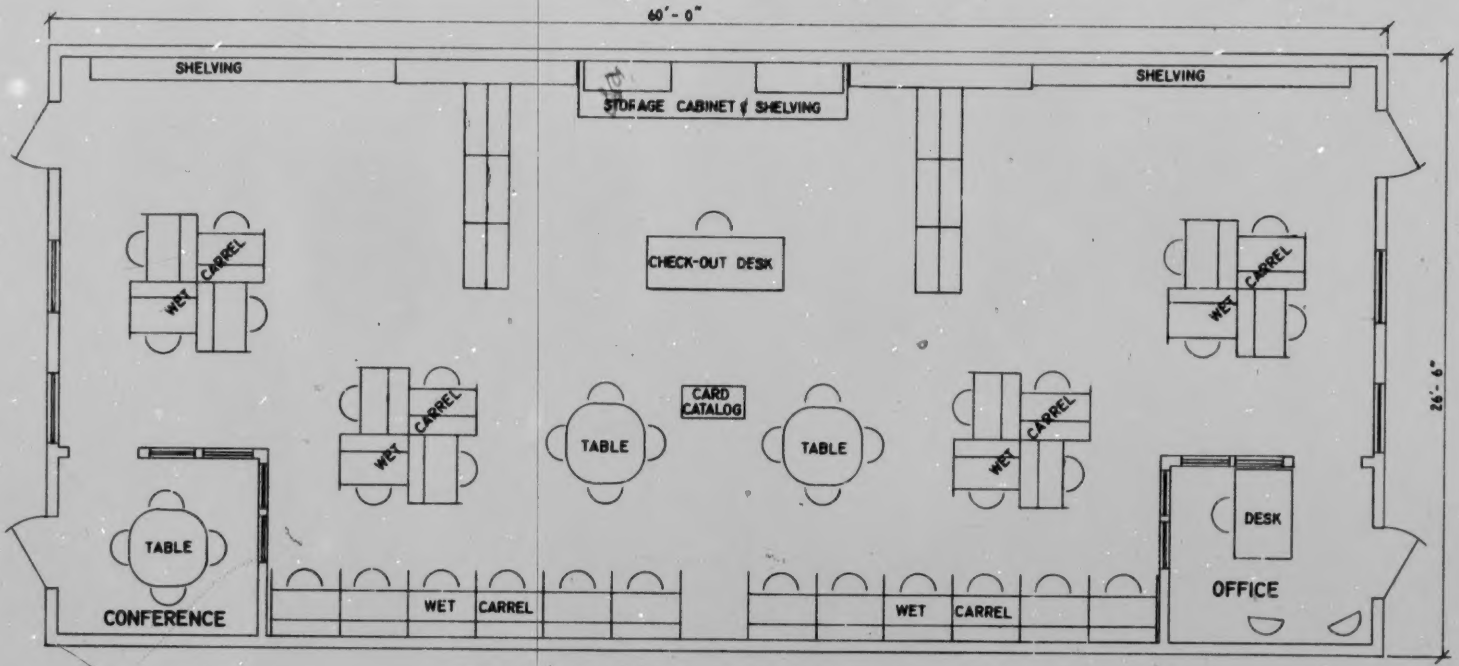
60'- 0"
26'- 6"
SHELVING
STORAGE CABINET & SHELVING
SHELVING
CHECK-OUT DESK
WET CARREL
WET CARREL
WET CARREL
WET CARREL
CARD CATALOG
TABLE
TABLE
TABLE
CONFERENCE
DESK
OFFICE
WET CARREL
WET CARREL

FIGURE 5 THE LEARNING RESOURCE CENTER

The primary equipment in the Resource Center consists of twenty Coxco sound/slide machines with individual headsets.

The Resource Center for typing is located between the two typing classrooms and is used by each instructor as indicated in Figure 4. This Resource Center is used by students who fall behind or those who want to do extra work during their full class period. Some of the materials and equipment are also stored in the Center.

Evaluation

In a survey of the Sanford administration and faculty who are involved with the individualized instruction program during the Pilot Test Phase it was found that 60 students were enrolled in carpentry; 69 in masonry; 118 in drafting; and 81 in metals for a total enrollment of 328.

Of these students 85% are expected to reach job level competency by use of the individualized package system. Ten percent of these students experienced severe reading difficulty in reading the task package and 5 1/2% of the students had to be referred to the remedial reading program. The students attempted a package an average of 1.7 times before mastering it and moving on to the next package.

Five of the respondents felt that students were progressing faster and learning more under the individualized package system than under the traditional system, while one felt that progress and learning was about the same. They felt that 82% of the students were having their needs met by the individualized package system. By the middle of February, the most number of packages completed was 75; the least, two; and the average, 28. At the same time, 25% of the students had taken advantage of the feature of the individualized package system that allows the student to test through on prior knowledge. The most number of packages completed by testing through was 20; the average, ten.

There were 18 sound-slide machines available to the students. The respondents reported that this was an adequate number and that the machines were in use about 50% of the time. They felt that the sound slide package added materially to the student's understanding of the package.

In a comparision of package students with those taught by the traditional approach the respondents found that 71% of the students were happier in the package program; 24%, about the same; and only five percent, less happy. Discipline proved to be a problem in only 13% more cases with about 26% of the students remaining the same, and 61% causing less problems. Motivation through the package system proved to be more in 67% of the students; 26% remained about the same; and only seven percent showed less motivation through the package system. Students who showed more energy and industry amounted to 41%; those who remained about the same on these two items were 45%; and 14% showed less energy and industry. Sixty-six percent of the students were more cooperative; 26% were about the same; and eight percent displayed less cooperation. Rating the students on dependability the respondents found that 45% were more dependable; 47% about the same; and only eight percent, less dependable. Eighteen percent of the students were more puntual; 74%, about the same; and eight percent, less punctual.

The respondents reported that while large discipline problems decreased in number, there was an increase in small problems. They also found that a problem arose because the students wanted to omit the textbook and reading part of the cycle. By omitting this portion they were then unable to comprehend the practical part of the cycle. One of the assets reported was that by not being required to spend as much time with all the students, instructors were released to work more with those who were having problems. The respondents were also pleased with the rapid pace of learning in the average and above average students.

Two student surveys were conducted by the project staff during the Pilot Test Phase. One in October, 1972, and the other in March, 1973. In both instances, the same survey form was administered to the students.

The survey form was composed of nine items in statement form utilizing a three point scale as the response mode. (See Appendix O.) The scale used was ALWAYS, SOMETIMES, and NEVER. Also included on the survey form were two open-ended questions. The eleven items on the survey form were:

1. I like having the responsibility for learning.
2. I like this new system of learning more than listening to an insturctor lecture.
3. I find it helpful to have the statement of the reasons for learning. (Rationale)
4. I find it helpful to have the statement of what I am expected to do. (Objective)
5. I am able to read and understand the instructional package.
6. I learn more from the sound-slide programs than the reading references.
7. I like to be able to learn at my own speed.
8. Upon completion of a task package, I feel confident that I have achieved the Objective.
9. Considering all things about this new instructional system, I think it is a more effective method of learning.
10. What do you like most about this new approach?
11. What do you dislike most about this new approach?

Table 2 shows the responses for the nine items using the three point scale. The total number of responses for the October, 1972 survey was 2262, and total responses for the March, 1973, survey were 2506. This increase can be accounted for by the influx of students into the program and may also be partly accounted for by an increased desire of the students and staff to obtain a more complete survey of student feeling. It is not felt that this numerical difference has any significant effect on the results of the survey evaluation.

A breakdown of the ALWAYS responses is show in Table 3. In the second and fifth columns the total number of responses made for each item is shown.

Table 2. Summary of responses to the two student surveys.

	October, 1972			March, 1973		
Item	Always	Sometimes	Never	Always	Sometimes	Never
1	119	135	3	127	150	7
2	146	99	11	123	136	23
3	117	132	6	89	172	11
4	154	93	8	134	134	13
5	114	139	1	109	165	7
6	25	154	36	72	165	36
7	222	36	0	212	63	4
8	126	128	5	110	159	10
9	143	100	10	123	126	26
Total	1166	1016	80	1099	1270	137

Table 3. Comparison of the ALWAYS responses on the two student surveys.

	October, 1972			March, 1973			
Item	N	Always	Always %	N	Always	Always%	%Change
1	257	119	46.30	284	127	44.71	- 1.59
2	226	146	64.60	282	123	46.61	-17.99
3	117	117	45.88	272	89	32.72	-13.16
4	255	154	60.39	281	134	47.68	-12.71
5	254	114	44.88	281	109	38.79	- 6.09
6	215	25	11.66	273	72	26.36	14.70
7	258	222	86.04	279	212	75.98	-10.06
8	259	126	48.64	279	110	39.42	- 9.22
9	253	143	56.52	275	123	44.72	-11.80
Mean	251.33	129.55	51.54	278.44	122.11	43.85	- 7.69

The range for this total in the October survey is 215 to 259 with a difference of 44. The March survey shows a range of 272 to 284 with a difference of 12. The lower difference in the latter survey may be attributed to a closer scrutiny of the survey by the staff and the desire of the students for increased input. It might also be noted that the item in the October survey with the lowest number of responses, Item 6, also had a low number of responses in the March survey. This low rate of responses may mean that the students feel uncomfortable with this item and, therefore, do not respond to it. It should also be noted that this is the only item that shows a positive increase in the March survey over the earlier October survey. It should be explained at this point that the use of positive to show an increase in the March survey over the October survey and the use of negative for an opposite increase is an arbitrary device used to show trends in the data, and these uses have no other connotation. The positive-negative device will be used for the discussion of all the data presented in this paper except where noted otherwise.

The major trend indicated in Table 3 seems to be a shift from a higher rate of the ALWAYS choice in the October survey to a somewhat lesser rate in the March survey. Using the average percentages for both surveys, there has been a shift of -7.69% between the surveys. With caution, because of the type and treatment (percentages) of the data, the conclusion may be drawn that there is less enthusiasm for the students to select the ALWAYS choice after six months in the project. It may also be concluded, with the above caution in mind, that there may have been a "novelty effect" working when the October survey was made. Note the high negative shift in items 2, 3, 4, 7, and 9.

The comparison of the SOMETIMES responses, Table 4, may be thought of as the neutral point in the surveys. It could normally be expected that this category would have the greatest number of responses in it. This, however, was not the case in the October survey but did become true in the March survey.

Table 4. Comparison of the SOMETIMES responses on the two student surveys.

	October, 1972			March, 1973			
Item	N	Sometimes	Sometimes%	N	Sometimes	Sometimes%	%Change
1	257	135	52.52	284	150	52.81	0.29
2	256	99	38.67	282	136	48.22	9.55
3	255	132	51.76	272	172	63.23	11.47
4	255	93	36.47	281	134	47.68	11.21
5	254	139	54.72	281	165	58.71	3.99
6	215	154	71.62	273	165	60.43	-11.19
7	258	36	13.95	279	63	22.58	8.63
8	259	128	49.42	279	159	56.98	7.56
9	253	100	39.52	275	126	45.81	6.29
Mean	251.33	112.88	44.91	278.44	141.11	50.67	5.76

Table 5. Comparison of the NEVER responses on the two student surveys.

	October, 1972			March, 1973			
Item	N	Never	Never%	N	Never	Never%	%Change
1	257	3	.0116	284	7	.0246	.0130
2	256	11	.0429	282	23	.0815	.0386
3	255	6	.0235	272	11	.0404	.0169
4	255	8	.0313	281	13	.0462	.0329
5	254	1	.0039	281	7	.0249	.0210
6	215	36	.1674	273	36	.1318	-.0356
7	258	0	.0000	279	4	.0143	.0143
8	259	5	.0193	279	10	.0358	.0165
9	253	10	.0395	275	26	.0945	.0550
Mean	251.33	8.88	.0353	278.44	15.22	.0546	.0193

The overall trend as shown by Table 4 is one of a shift to the positive or an increase of the number of responses in the March survey over the October survey. The one exception to this trend is Item 6 which shows a negative shift in Table 4 that is reflected in Table 3 by the positive shift against the overall negative trend. A possible conclusion that can be drawn from the behavior of this item is that the students found the sound-slide programs to be more useful as their task became more involved.

The positive shift of the SOMETIMES response, as indicated in Table 4, seems to add weight to the conslusion that a "novelty effect" might be at work in this project. After six months of working with and becoming used to the new system, the students seem to be taking a more discriminating look at it.

The average positive shift as shown in Table 4, is 5.76%. It may be fairly concluded that this increase came primarily from the ALWAYS responses even though the percentages do not match completely. Because of this mismatching, caution should be used when looking for significance in the data.

From the viewpoint of the staff, the information contained in Table 5, the comparison of the NEVER responses, is perhaps the most critical for the success of the project. A large increase in this category would mean a trend toward dissatisfaction with the project. An examination of the data from Table 5 shows that there is a positive trend, that is, an increase of NEVER responses in the March survey over the October survey. However, the number of responses is so small when compared to the other two categories that it is unlikely that any real significance can be attached to this trend. The total increase, percentagewise, is a positive 0.0193%. It might be concluded from this figure that the NEVER category is fairly stable at this particular time.

Table 6. Item 10: What do you like best about this new approach?

	October, 1972		March, 1973	
Response	N	Responding%	N	Responding%
a. Learning at own speed	144	61.01	145	59.42
b. Not listening to instructor talk	23	9.74	26	10.65
c. Like the sound-slide	23	9.74	31	12.70
d. Easier to understand	16	6.77	16	6.55
e. Like having responsibility for learning	13	5.50	13	5.32
f. Not boring	10	4.23	2	.81
g. Challenging	7	2.96	5	2.04
Total	236		238	

Table 7. Item 11: What do you dislike most about this new approach?

	October, 1972		March, 1973	
Response	N	Responding%	N	Responding%
a. Dislikes reading	19	32.75	22	26.82
b. Can't always understand; ask for help	18	31.03	15	18.29
c. Repeats materials	10	17.24	3	3.65
d. Sound-slide programs	6	10.34	19	23.17
e. Responsibility for learning	3	5.17	4	4.87
f. Instructor doesn't have enough time	2	3.44	19	23.17
Total	58		82	

It is interesting to note that Item 6 has again gone against the trend. While it has remained the same numerically, the increase in responses in the March survey decreases the percentage value of the 36 responses from .1674% to .1318% or a shift in the negative direction of .0356%. One wonders, but cannot conclude, if it is the same 36 students who never learn from the sound-slide program.

Tables 6 and 7 are included to show the responses to the two open-ended questions. The percentages in the fifth or last column show the shift trends. In Table 6 the largest shift is for the "Not boring" response, but again caution must be observed in attaching significance to these figures. It is interesting to note the larger number of students who seem to like to learn at their own speed.

Table 7 shows a greater degree of shifting in the responses by the students. It is unfortunate that the total number of students responding to this item was not numerically larger so that more credence could be placed on the results, but because of the lack of a larger numerical total, no valid conclusions can be drawn from these figures. One may, however, speculate that there are some areas in the project that need to be watched closely and may be in need of some improvement. One may, of course, say this about any new project.

In viewing the project as a whole, it can be concluded that the students seem to be in favor of this new way of learning occupational subjects. In three informal interviews with the staff of the occupational unit of Sanford Central High School, it was found that the staff also felt strongly that this was a better method of teaching and learning. The staff also seemed to agree that it was harder for them to teach this way, but the results they were achieving made it worthwhile.

CHAPTER IV. CONCLUSIONS AND RECOMMENDATIONS

This chapter will summarize the findings of the research project and present recommendations based on experience gained in the project. For convenience sake, the major conclusions and recommendations are presented in two categories - those pertaining to administration of the research project, and those pertaining to the instructional system itself. A separate section which speaks to product transportability is also included.

Product Transportability

Two major products were derived from the project - a workable model for the curriculum development process and a tested instructional system complete with individualized curriculum materials in six cluster areas. Throughout the project the idea of developing transportable products was in the forefront.

The instructional system, including curriculum materials, is highly transportable. Dissemination and utilization efforts have already been described in the section, "Dissemination Activities." Complete sets of the curriculum materials in Masonry, Carpentry, Drafting, Machine Shop, Typing, and Distributive Education are available in either hard copy or through the ERIC system.

The other product, and probably the most valuable in the long-run, the curriculum development model, is also transportable with minor modifications. Total cost of the research project, including the planning and development phases, was high. However, the curriculum development model can be replicated at much lower costs. Table 8 will serve to illustrate. Costs shown in the table reflect only those expenditures incurred during the Planning, Development, and Pilot Test Phases of the project. This two-year period encompassed the curriculum development activities and does not include dissemination and field-testing activities. Table 8 should be helpful to those considering replicating the curriculum development model described in this report.

Table 8. Actual expenditures and estimated replication costs for curriculum development in the six cluster areas of Masonry, Carpentry, Drafting, Machine Shop, Typing, and Distributive Education.

Item	Actual Cost (Two-Year Period)	Replication Needs*
Personnel		
Project Director	$22,943	One Project Director
Resource Center Manager	19,560	One Center Manager (If Center is used)
Secretarial Assistance	6,248	One Secretary-Offset Operator
Aides	4,972	One Aide (If Center is used)
Part-time Workers	18,432	8 Typists, 4 Assemblers, 1 Narrator, 1 Photographer, 5 Instructors for two months
Employee Benefits		As Appropriate
Materials		
Paper	3,174	2000 reams of paper
Supplies	18,514	Printing supplies, film and processing, office supplies, etc.
Equipment		
Resource Center Furniture	6,546	As needed to equip Resource Center
Multi-Media Equipment	7,300	As needed to equip Resource Center
Cassette Players	2,577	As needed to equip Resource Center
Other	10,521	As appropriate
Contracted Curriculum Development		
RCA Corporation	57,500	As appropriate
UNC-G	14,204	As appropriate
Travel	3,188	Travel for Project Director
Communications	1,002	As appropriate for telephone and postage
Consultants	763	As appropriate

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*This portion of the research project consumed two years time. It is estimated that replication of the project would require four months planning time, three months development time, and nine months pilot-testing and revision time.

Conclusions and Recommendations Concerning Conduct of the Project

1. A rather high level of funding is necessary for the systematic development of instructional systems. On a small and limited basis, the traditional method of curriculum development (teachers writing for personal classroom use) is not practical because of the lack of assessment, uneven quality, and questionable benefits from the high development costs. However, such high levels of funding can be justified only if the materials and systems are widely disseminated and used.
2. The administrative arrangement of providing concentrated curriculum development funds to a selected school for on-site development and try-out has proven a viable alternative for North Carolina and should be continued in the future.
3. The team writing approach (i.e., a professional writer, a tradesman, and a teacher) has proven to be an economical and highly productive arrangement for producing curriculum materials and should be continued in the future.

Conclusions and Recommendations Concerning The Instructional System

1. Students in an individualized instructional system feel that they share a much greater responsibility for learning. Students respond positively when given this responsibility.
2. The learner finds it very helpful to know the reason (rationale) and the expected performance (objective) before the learning activity begins.
3. The multi-media programs are extremely beneficial to all learners, but especially for the learners who have difficulty reading.
4. The idea that a student can learn if given enough time is applied in this system. A student does not progress in this system until the more simple competencies have been mastered.

5. Each unit has a prepared test including either theory test questions or performance test questions and sometimes both. The learner appreciates having in hand the instructor's checklist of the criteria for evaluating the performance test.
6. A letter grade has never been very meaningful to a prospective employer for an occupational course. Through the use of the vocational skill list, the student may show the employer which competencies he possesses as verified by his instructor. This builds in accountability for the instructor and the student.
7. The instructor in this system must change from a dispenser of information to a manager of learning. In some instances this role change is difficult, therefore, indepth inservice training is required.
8. In an individualized instructional system the student evaluation must be individualized. This is not easy because the evaluation becomes more subjective than the instructor has been accustomed to in the past. The number of competencies completed, the ability of the student, the effort of the student, and the quality of the student performance should be considered in evaluating the students progress.
9. In this instructional system a student may enter or exit the program on any given day. This flexability offers the school administrator an asset that he never enjoyed before.
10. The cost of implementing an individualized system is greater than the traditional method of instruction. The cost may not be as great as it appears on the surface because there is a shift in cost from a large number of textbooks to more printed task packages and multi-media.

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APPENDIX A

Sample Mini-Course Descriptions

COURSE TITLE: Introduction to Agriculture
MINI-COURSE: Agricultural Careers & Leadership
QUARTER OFFERED: First
DESCRIPTION: This mini-course will introduce to the students the importance of agriculture and the number of various agricultural occupations related to the world of work. F.F.A. activities such as livestock judging, parliamentary procedure, land judging and tools will be included.

COURSE TITLE: Introduction to Agriculture
MINI-COURSE: Animal Science
QUARTER OFFERED: Second
DESCRIPTION: The students will develop an understanding of the basic fundamentals of animal science and its importance in local and national economics.

COURSE TITLE: Introduction to Agriculture
MINI-COURSE: Soils and Plant Science
QUARTER OFFERED: Third
DESCRIPTION: This mini-course develops an understanding of the importance of soil to our nation and to the sustenance of human lives. A Land Judging Contest is included as a means of learning about soils. The course also covers the importance of plant science to domestic animals, wildlife, environmental beautification, and society.

COURSE TITEL: Introduction to Agriculture
MINI-COURSE: Agricultural Mechanics
QUARTER OFFERED: Fourth
DESCRIPTION: The students will develop basic skills in identifying, operating, and using agricultural tools and equipment efficiently.

APPENDIX B

Masonry Task Package

BM-VII-1

UNIT VII: CONSTRUCTION OF BRICK WALL USING APPROPRIATE PATTERN BOND

TASK PACKAGE 1: LAYING UP A 4" STRETCHER WALL

PREREQUISITES: UNIT I, TASK PACKAGES 1 - 2; UNIT IV, TASK PACKAGE 1;
UNIT VI, TASK PACKAGE II

RATIONALE:

The 4" stretcher bonded wall is one of the most extensively used bonds for the construction of brick veneer and partition walls. It is known as stretcher bond since all of the courses are laid using the stretcher position of a brick. Familiarity with the 4" stretcher bonded wall pays dividends to the mason.

In this task package you will learn to properly position the mason line on established leads and to lay brick to the line. This 4" stretcher wall is only the beginning of many different types of walls you will be building in the near future. In this task package you will also gain skill in building a stretcher bonded wall. Continue by reading the Objective and performing the Learning Activities and the Learning Practice.

BM-VII-1

OBJECTIVE:

Upon completion of this task package you will be able to lay up a 4" stretcher wall between established leads maintaining the following:

a. 3/8" to 1/2" mortar space between each brick lengthwise.

b. + 1/8" for overall height for a given number of courses and wall height.

c. All brick laid to a line.

Your performance will be evaluated in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. View sound-slide package BM-VII-1.
2. Refer to Unit III, Task Package 1; Unit VI, Task Packages 1 & 2.
3. View figure 1, page 5.
4. Read and study Masonry Simplified, Volume I, pages 264 and 265.
5. This completes the Learning Activity. Now begin the Learning Practice.

LEARNING PRACTICE:

Tools and Equipment

1. Trowel
2. Mortar board
3. Brick hammer
4. Mason's line
5. Corner blocks or pins
6. 6 ft. spacing rule

LEARNING PRACTICE (cont'd):

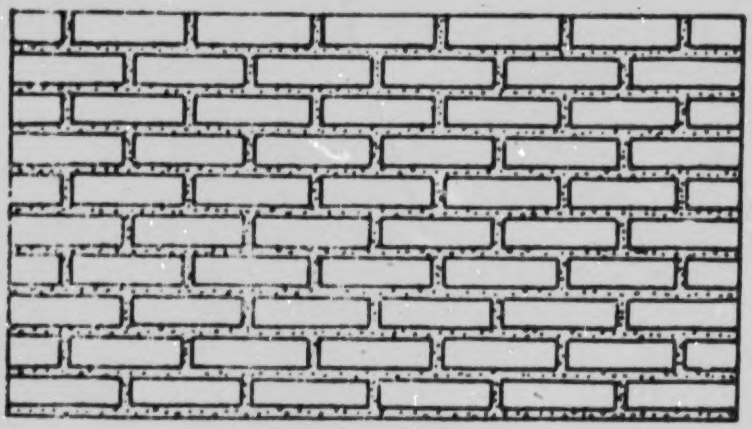
1. Check with the instructor for the type of brick to be used, and the height of the wall; then determine the brick spacing and mark them on the leads.
2. Stretch a mason line on established corner leads.
3. Spread mortar on deck.
4. Lay 6 brick on the bed of the mortar to a line. Be careful not to crowd the line; this will cause a bulge in the wall. Also try to maintain a 1/16" space between the top edge of the brick and the mason line. Maintain a 3/8" to 1/2" mortar space between brick.
5. Now that you are finished with the first course you are ready to start the second course. (Be sure to check that no brick are below the line).
6. Secure half brick from instructor.
7. Move mason line up to the second course, making sure the line is adjusted to the correct position on the lead.
8. Spread mortar on top of the first course of brick.
9. On one end of the wall set a half brick in position so it is flush with the bottom brick, at the same time keeping the top edge of the half brick to the line.
10. Fill in the remaining section of the wall with brick maintaining the 3/8" to 1/2" mortar joint or head joint.

LEARNING PRACTICE (cont'd):

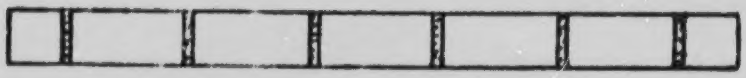
11. Repeat all operations previously used for the first two courses in completing the remaining courses to the given height ± 1/8".

12. When finished for the day, clean up work area and tools. Well, since you finished the wall, was it as easy as you first thought? It probably wasn't, but don't be discouraged; you will get much better as you keep trying. Remember, the longest journey begins with the single step.

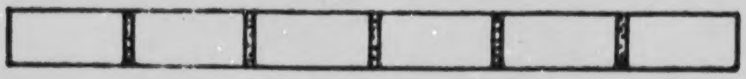
A 4" ALL STRETCHER WALL



Front Elevation



2nd, 4th, 6th, 8th and 10th course plan



1st, 3rd, 5th, 7th and 9th course plan

Figure 1

APPENDIX C

Carpentry Task Package

C-XI-1

UNIT XI: ROOF FRAMING FOR A HOUSE

TASK PACKAGE 1: COMMON RAFTERS

PREREQUISITES: UNITS I-VII; UNITS IX-X

RATIONALE:

Many so-called common things are really good things. Take the common rafter, for instance. It supports the roofing material which protects the unfinished structure and keeps raindrops from falling on your head while you work inside.

Now that the wall framing for your house has been completed in Unit X, the next step, as many carpenters believe, is to apply a covering over the walls in order to protect the structural members from the weather. This procedure also allows other work to progress inside the house. The first stage in providing this cover is to lay out and cut common rafters which become the foundation upon which the rest of the roofing material will be placed. Logically, then, in this task package you will learn how to lay out, cut, and install common rafters for your house, using the plans and specifications provided. Continue, now, by reading the Objective and doing the Learning Activity and the Learning Practice.

C-XI-1

OBJECTIVE:

Upon completion of this task package you will be able to lay out, cut and install common rafters for a residential structure according to plans and specifications maintaining the following standards:

a. length of common rafters is computed correctly with respect to span of building, pitch of roof, and overhang, within (± 1/16").

b. bird's mouth is correctly cut on common rafters.

c. ridge cut of common rafters is correctly cut to within (± 1/16") of the required angle with respect to appropriate angle (± 2°).

d. tail cut of common rafters correctly cut with respect to appropriate angle (± 2°).

e. common rafters are properly positioned (± 1/16") and nailed to plate and ridge (type of fastener and spacing).

f. overhang is of proper length (± 1/16").

Your performance will be evaluated in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. View sound-slide package C-XI-1, an extra special feature.
2. Read and study carefully pages 157-165 in Modern Carpentry, ending your reading with the section entitled Gable End Frame on page 165.
3. This completes the Learning Activity; begin the Learning Practice.

LEARNING PRACTICE:

Tools and Equipment

1. 100 foot layout tape
2. Folding wood rule
3. Crosscut saw
4. Portable electric circular saw
5. Radial arm saw
6. Framing square
7. Pencil
8. Combination square

1. Contact your instructor and discuss the laying out, the cutting, and the installation of common rafters. When you and your instructor feel you are ready to proceed, go to step 2 in the Learning Practice.
2. Refer to the plans for the house and determine the number of common rafters needed, the spacing between them, their length, their width, and their thickness. Note - To determine length of the rafters you will need to know the slope of the roof and the amount of overhang required.
3. Referring to the procedure outlined in Modern Carpentry, pages 161 to 163, and using the framing square, lay out a common rafter

C-XI-1

LEARNING PRACTICE (cont'd):

on a straight and true piece of stock of the correct length, using the proper width and thickness of lumber. You should lay out for the ridge cut, bird's-mouth (seat cut and plumb-cut), the tail cut, and provide for the proper overhang.

4. If difficulty is encountered in the layout, contact the instructor for help. When satisfied that the rafter has been properly laid out, let the instructor check your final layout.
5. Cut the rafter along the lines you have laid out and label this rafter as a pattern.
6. All other common rafters may now be laid out using the pattern rafter as a model.
7. So that the rafters may be properly positioned when erected into place, lay out the double plate according to the plans and specifications.
8. After you have evaluated yourself on the work, contact the instructor.
9. After satisfactory completion of this job you will be directed to the next task package.
10. Place all of the common rafters aside until you begin work on the next task package.

No attempt at humor will be made here-just a hearty congratulations for a job well done!

There's nothing common about the way you study carpentry!

APPENDIX D

Metals Task Package

M-I-13

UNIT I: MEASURING DEVICES

TASK PACKAGE #13: DIAL INDICATOR

PREREQUISITES: UNIT I, TASK PACKAGE 12

RATIONALE:

You have learned to test the dial indicator in your last package. Now you will learn to test a piece of stock with the dial indicator.

The dial indicator can be, and is, used on all the machines in a machine shop. As you progress through this course you will be asked to use the dial indicator to check and align workpieces on or off the machines. How well and how easily you can do this depends a great deal on how well you learn the basic lessons in your task packages.

Do a good job now and you will enjoy it later!

OBJECTIVE:

Upon completion of this task package you will be able to use a dial indicator, vee blocks, and surface plate to test the concentricity (roundness) of stock. A standard of accuracy of ± .001 of an inch will be required.

M-I-13

LEARNING ACTIVITY:

1. View slide-sound program M-I-13.
2. The vee blocks, also called V-blocks, are holding devices for roundstock. To find out something about them and how they are used, turn to page 59 in Metalwork Technology and Practice and read section 92. Figure 69 on the same page shows how the clamps are used with them. Now turn to page 210, figure 427, and see the v-blocks used in another way; page 578, figure 1287 also shows the v-blocks in use.
3. You will be using the dial indicator again in this task package, so turn to page 446 in Metalwork Technology and Practice and see some of the various uses of this measuring device. Read section 1152 on this and the next page and examine the pictures and illustrations. You are probably wondering why you are doing so much jumping around and looking. The reason for this is that the work you do in a task package is usually a basic function of the tools and equipment. There are many other ways to use these tools and, while it may be sometime before you do use them, you should be aware of some of these uses.
4. Read the section on v-blocks in Machine Tool Technology, page 58, and notice figure 3 - 30.

LEARNING ACTIVITY (cont'd):

5. Machine Shop Operations and Setups, page 43, figure 41 shows a picture of the operation you will be doing in this task package. Study it and notice that you can use this operation to check tapers. This practice will be useful for a later task package.

NOTE: V-blocks should be purchased in pairs and the pairs should be kept together. Don't mix V-blocks.

6. Go into your Learning Practice.

LEARNING PRACTICE:

Tools and Equipment

1. Dial indicator set
2. V-blocks and machinist's clamps.
3. Surface plate
4. Pencil and paper

1. Obtain from your instructor a piece of smooth roundstock about 6" to 8" in length.
2. Make the setup as shown in figure 41, page 43, Machine Shop Operations and Setups.
3. Test the concentricity of the roundstock at each end and at each 1/2 inch of the length. Record your readings on a piece of paper.
4. You may want to test other pieces of stock. If so, ask your instructor for some pieces to test.

LEARNING PRACTICE (cont'd):

5. Show your work to your instructor and, if you have any questions, now is a good time to ask him about them.
6. When you have made the test, clean all the tools and replace them. Handle these tools very carefully as nicks or burrs can limit their usefulness.

You have completed the unit on measuring devices. While this has been a long unit it also is a very basic, but important, part of your introduction to the machine shop crafts. Remember in all your future work that you are becoming a craftsman, and to be a craftsman you must first be accurate!

APPENDIX E

Drafting Task Package

UNIT II: SCREW THREADS AND FASTENERS

TASK PACKAGE 1: DEFINITIONS OF SCREW THREAD TERMINOLOGY

PREREQUISITES: NONE

RATIONALE:

The use of screw threads appears so frequently in the daily task of the draftsman that the common forms and methods of representation must be understood. The jobs that screws and other fasteners do are so vast that a draftsman needs to be able to identify the various types and the particular job that each does. The draftsman should be concerned with the basic terminology of screws and screw threads. The draftsman's language is graphical, and he must know the relationship between his representation of screws and threads and the correct terminology his symbols are to express. You need to have an accurate understanding of the terms that apply to screws and screw threads. "Get in the twist of things and tighten up all the screws in this package."

DM-II-1

OBJECTIVE:

Upon completion of this task package you will be able to list and define in writing, six common terms related to threads. Your performance will be evaluated in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. Read pages 202-206 in Basic Technical Drawing.
2. Read pages 154-158 in Mechanical Drawing.
3. Review sound-slide presentation DM-II-1, today's terrific show.
4. Study figure 465 on page 202 in Basic Technical Drawing. Can you see the different items that are related to a help?
5. Study figure 466 on page 203 in Basic Technical Drawing. Notice the difference between external and internal threads.
6. Study figure 471 on page 205 in Basic Technical Drawing. Notice the variations in the pitch of each example.
7. Study figure 472 on page 205 in Basic Technical Drawing. Do you see the difference between right and left-hand thread?
8. Study figure 473 on page 206 in Basic Technical Drawing. Do you see the difference between multiple threads?
9. Study figure 12-6 on page 157 in Mechanical Drawing.

DM-II-1

LEARNING ACTIVITY (cont'd):

10. Looks as though you're not goofing around. You've finished this Learning Activity. Check with your instructor before starting the Learning Practice.

LEARNING PRACTICE:

1. Study pages 202-206, section 202-208 in Basic Technical Drawing.
    a. From the pages listed above find six terms related to screw threads.
    b. List the terms found in part a on a sheet of paper. Leave two lines blank between each word.
    c. Define the words found in a. Use the space beside the word.
2. Study section 205, on page 204, in Basic Technical Drawing.
    a. List five thread forms found in the above section. Leave two spaces between each listing.
    b. Write the function of each thread form listed in a.
    c. Sketch each thread form listed in a.
3. Study section 208, on page 206 in Basic Technical Drawing.
    a. Write an explanation as to the relationship between lead and pitch.
4. Be sure your name, today's date and this package number are on your paper.
5. Now tell me, how many of your friends could do this? I know they couldn't do it like you do it. Take your work to the instructor for an evaluation. Beethoven was a perfectionist - why shouldn't you be one?

APPENDIX F

Typing Task Package

UNIT IV: PERSONAL AND BUSINESS LETTERS

RATIONALE: Letters plus term papers are perhaps the two most important type problems you will encounter in Typing I. In typing letters you should always strive for good form, neatness, and accuracy because you are "selling" your qualifications or your organization to someone else and you definitely want to make a good impression.

A carbon copy is made of most letters in business offices, because one copy always remains on file for reference. Offices also have printed stationery (letterhead stationery plus a matching envelope). In addition to looking attractive, letterheads save a secretary's time since she does not have to type a return address on either the letter or the envelope.

There are two basic letter styles--block style and modified block style. See which style you prefer!

OBJECTIVE: Upon completion of this unit package, you will be able to type personal/business and business notes and letters in block and modified block styles to a degree of 98 percent accuracy.

LEARNING ACTIVITY:

There are no individual task packages for this particular unit. See cassette tape 4-1A on personal/business letters before beginning Section 2. See cassette tape 4-1B on strictly business letters before beginning Section 3. Also consult the illustrations and study sheets in this package. You will be referring to pages 86-96 in your Brown Text.

LEARNING PRACTICE:

Pick up correct amount of paper before beginning each section. This practice will be divided into three sections. Correct errors in all problems.

Section 1--Memos and Personal Notes (5 half sheets)

Memos in Block Style

53C, Problem 1, p. 86 (Read the actual content of this memo before typing it. Type problem only once.)

What does block style mean?

Problem 2, p. 87 (Half sheet; 60-space line; SS)--top

Personal Notes

Problem 1, p. 87--bottom

Problem 2, p. 89

56C, p. 89 (Step 1 only. Follow directions and THINK!

HOLD THESE 5 PROBLEMS UNTIL YOU COMPLETE ENTIRE PACKAGE!

Section 2--Personal/Business Letters (3 full sheets)

Have you listened to tape 4-1A?

Problem 1, p. 91

Problem 2, p. 91 (Change the return address to your own home return address. See return address illustrations in this package. Send letter to Dr. Newkirk. What would be the correct salutation for this letter?)

Problem 3, p. 91 (Notice that the correct salutation for a letter addressed to a company is just Gentlemen NEVER Dear Gentlemen)

What does modified block style mean?

What is mixed punctuation?

What is open punctuation?

HOLD THESE 3 PROBLEMS UNTIL YOU COMPLETE ENTIRE PACKAGE!

Section 3--Business Letters (3 letterheads, 1 onionskin, 6 small envelopes)

Have you listened to tape 4-1B?

59D, Problem 1, p. 93

59D, Problem 1, p. 93 (Retype the same letter again but this time use block style. The spacing between various parts is the same, but where does every line begin in block style?)

Problem 2, p. 95 (Study how to type carbon copies in 59C, p. 93 and in this package.)*

Which side of the carbon paper (glossy or dull) is toward you once you have inserted your carbon pack in the machine and are ready to begin typing?

A carbon pack is composed of what parts?

*When you type a problem with a carbon copy, make sure you finish the problem completely after you start if possible. It is often difficult to realign the original and carbon copy (which you cannot even see) at a later date.

Section 3 (cont.)

Address small envelopes for all letters in Section 2 and Section 3 (6 envelopes total).

Study 61B, p. 96 including the bottom or refer to "Typing Small Envelopes" in this package.

Place each letter on the right side of your desk and address envelope directly from typed letters. The envelope address should agree with address(es) in the letter in content, style, and spacing.

For the envelopes in Section 2 you must type both the return address and the letter address.

For the envelopes in Section 3 you do not need to type a return address since you typed these letters on letterhead stationery and would, therefore, have matching envelopes with a printed return address. (Assume on business envelopes that you have a printed return address always.)

TURN IN ALL PROBLEMS IN SECTIONS 1, 2, and 3!
(11 problems total plus carbon copy and 6 envelopes)

TEST:

Written or typed.

LETTERS

There are two basic letter styles: block--every line begins at left margin

modified block--(1) return address (if one) and date begin at center point

(2) closing lines begin at center point

There are two kinds of punctuation: open--no punctuation after salutation and no punctuation after complimentary close

mixed--a colon (:) after salutation and a comma (,) after complimentary close

Parts of a business letter in the order that they appear in a letter:

return address (if no letterhead)
date
letter address
salutation
body
complimentary close
signature (in longhand with a pen never a pencil)
typed name
typed official title or position (if one)
typist initials (also called reference initials)--the first letter of the first and last names of the typist which appear on a letter in small letters with no periods or spaces. Throughout the textbook always use your own typist initials regardless of what the initials are in the problem.
enclosure notation--When the body of a letter states something is enclosed (or being sent in the same envelope with the letter), then an enclosure notation should be made two spaces below the typist initials. For example, two enclosures might be shown as follows:

(1) Enclosures
(2) Enclosures 2
(3) Enc. 2
(4) Enclosures: Check for $528.50
List of Salesmen

Carbon Copies

carbon pack: plain sheet or letterhead (sheet with name of company or organization, address, phone number, top executives, etc. already printed at the top)

carbon paper (dull side toward you after pack is inserted in the typewriter)

onionskin (a thin paper used for carbon copies. A carbon copy is made of most letters in an office and filed. If filed, the carbon copy or onionskin sheet would normally not contain a signature.)

Carbon Copies: To make one carbon copy, place a sheet of carbon paper (glossy side down) on a thin sheet of paper (onionskin). On top of the carbon paper, place the original sheet. After stacking the carbon pack and while holding the pack firmly, insert it in the typewriter and turn the right cylinder knob slowly until the carbon pack is positioned around the cylinder. Then operate the paper release lever to even the carbon pack at the top and to prevent streaks from appearing on the carbon copy due to the carbon paper itself wrinkling. Once you are ready to begin typing, check to make sure the dull side of the carbon paper is now toward you!

For each additional carbon copy, just add another sheet of onionskin (bottom) and another sheet of carbon paper (top).

Typing and making one carbon copy is known as preparing copy in duplicate (two copies--one original and one carbon copy). Typing and making two carbon copies is known as preparing copy in triplicate (three copies--one original and two carbon copies), etc.

Different address lines for use in either a return address or a letter address:

1708 Maple Street
Sanford, N. C. 27330

P. O. Box 392
Sanford, N. C. 27330

Route 4, Forest Hills
Sanford, N. C. 27330

Route 4, Box 286
Sanford, N. C. 27330

If an address applies to a small community where there are no streets, etc., place the name of the town on one line and the name of the state on the next line as follows:

Miss Jane Jackson
Cumnock
North Carolina 28602

You always need at least three lines for the letter address.

A Personal/Business Letter (Modified Block Style
Mixed Punctuation
50-space line)

Set tab

The line on which you begin the return address depends upon the length of the body. (Begin at center point on line 18.)

2 blank spaces between state and ZIP Code

return address

1744 Rosemont Drive
Sanford, N. C. 27330
Current Date

Always come down 4 lines to the letter address

letter address

Director of Admissions
Meredith College
Raleigh, N. C. 27410

2 blank spaces

DS

salutation

Dear Sir:

DS

body

As a senior at Sanford Central High School, I am interested in applying for admission to Meredith College for the 1973-74 term. Please send me an application form plus any information concerning scholarships and loans that are available. If I am to attend college in September, I shall need some financial assistance. I would even consider a work-study program.

If a personal interview is required, please notify me and specify any additional information I might need.

complimentary close

Sincerely yours,

signature

Come down 4 lines to the typed name

typed name

Your Typed Name

Girls, include Miss or Mrs. (with or without parentheses) before your typed name. In the signature then do NOT use Miss or Mrs.

Boys, do not use Mr. in either typed name or signature.

mixed punctuation--colon after salutation and comma after complimentary close

open punctuation--NO punctuation after salutation or after complimentary close

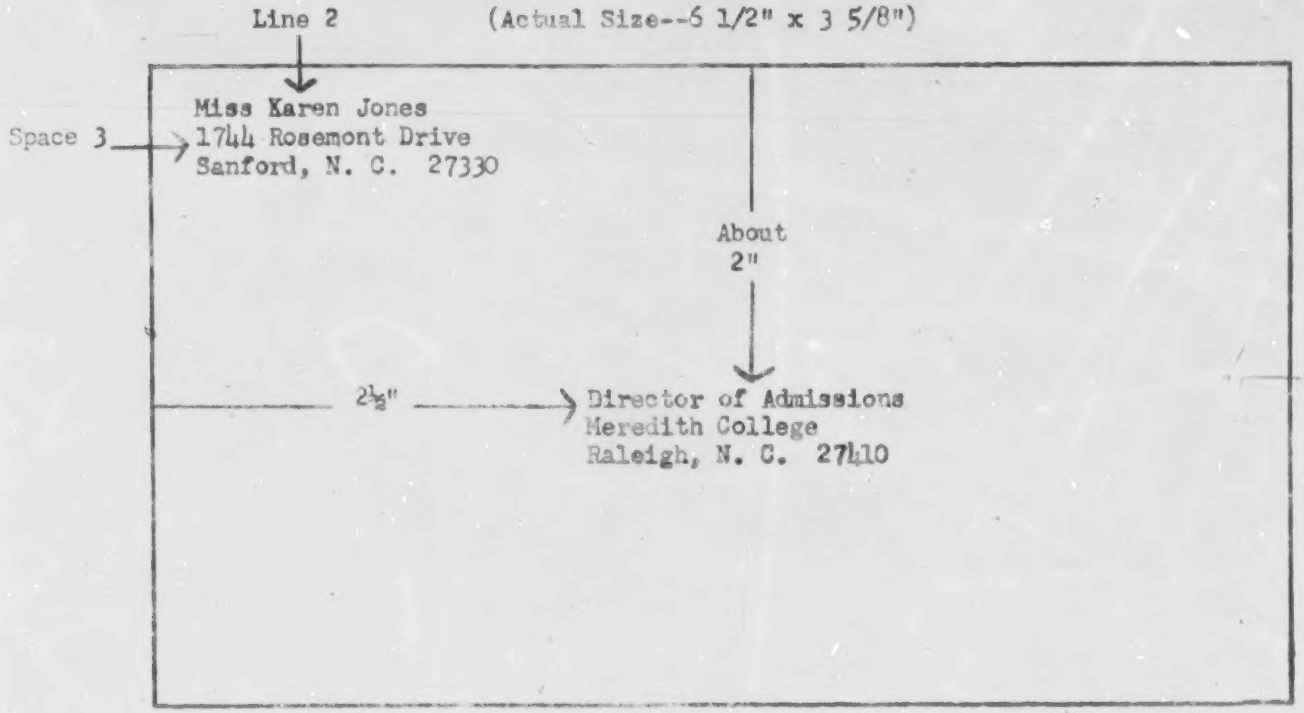
To address a small envelope: Type the writer's or sender's return address (if one) in the upper left corner. (You do not have to type a return address on an envelope when it is already printed to correspond with matching letterhead stationery.) If you must type the return address on an envelope, begin on the second line from the top edge and the third space from the left edge. Use block style and single space.

Type the first line of the letter or envelope address about 2" from the top (about vertical center) on line 12 or 13. Begin about 2½" from the left edge. Use block style and single space, no matter how many or how few lines are required.

A ZIP Code number is found in both the return address and the letter address. A person's title is found in both the return address and the letter address of an envelope.

Small Envelope

(Actual Size--6 1/2" x 3 5/8")



Miss Karen Jones
1744 Rosemont Drive
Sanford, N. C. 27330

Director of Admissions
Meredith College
Raleigh, N. C. 27410

You may spell in full a state name (California), abbreviate it according to the old standard abbreviation (Calif.), or abbreviate it according to its 2-letter ZIP Code abbreviation designated by the U.S. Postal Department (CA). The Postal Department prefers that ZIP Codes be used with all state names regardless of whether the name is spelled in full or the old standard abbreviation is used. ZIP Codes must, however, be used with all new 2-letter abbreviations as CA 75331.

APPENDIX G

Distributive Education Task Package

STUDENT'S PACK

Competency Grouping Communications Competency No. 142

L.A.P. Title Stimulating customer interest with trademarks, slogans, and similes

LEARNING ACTIVITIES

Competency No. 142 and Objective(s):

A. Given a handout of six sections, you will be able to evaluate ways to stimulate customer interest with trademarks, slogans, and similes with 90% accuracy.

DIRECTIONS: To become most competent in communicating effectively, it is suggested that you complete Activity 2 under the Individual Learning Activities.

Large Group

1. You will listen to a presentation by an advertising director from a local business giving methods and ideas used by businesses to gain customer interest through the use of trademarks, slogans, and similes.

2. You will brainstorm ways to stimulate customer interest with trademarks, slogans, and similes.

Small Group

1. After being divided into small groups, design a trademark and write a slogan for a specified product. Be prepared to explain to the class why you feel that your trademark and slogan will stimulate customer interest.

2. After being divided into small groups, secure magazines and newspapers. From these magazines and newspapers, find three trademarks and three slogans and write a report telling what qualities are in these trademarks and slogans that will stimulate customer interest.

Individual

1. Read one of the following:
   a. Advertising, 2nd Ed., Source #74 NC. pp. 77-85; 350-351.
   b. Advertising, 3rd Ed., Source #88 NC. pp. 139-143; 535-537.
   c. Marketing, Sales Promotion, and Advertising, Source #20 NC. pp. 329-334; 341-343.
   d. Advertising Theory and Practice, 7th Ed., Source #81 NC. pp. 364-371.

2. Complete the following:

   a. You will be able to define trademarks, evaluate trademarks, give a function of a trademark, and design a trademark.

      1) Locate Handout #1 which defines trademarks and gives information about trademarks.

STUDENT'S PACK

Competency Grouping Communications Competency No. 142

L.A.P. Title Stimulating customer interest with trademarks, slogans, and similes

LEARNING ACTIVITIES

Competency No. 142 and Objective(s):

Individual (Continued)

2) Once you have read the handout, locate and complete the self-evaluation exercises in Section 2 of the handout. When you have completed this exercise correctly, go on to Section 3 of the handout.

3) When you have done the exercises in Section 3 Handout #1, proceed to Part B.

b. You will be able to define slogans and similes, to evaluate slogans by a given table of standards, to name six features of a good slogan, and to write a slogan.

1) Locate Handout #1-Section 4 which defines and gives information about slogans and similes.

2) Once you have read the handout, locate and complete the self-evaluation exercises on Section 5. When you have completed this exercise correctly, go on to Section 7 of the handout.

3) Complete the exercises on Section 6 of the handout correctly.

Optional

1. Make a study of careers in the field of advertising and develop an in-depth report of the career in advertising that interests you the most.
2. Prepare a bulletin board of the better known trademarks and slogans and point out the reasons or the qualities that have made these more popular with people.

HANDOUT #1 - SECTION I

A trademark is a distinctive, identifying symbol of a product. Many companies desire to register their trademarks with the U. S. Patent Office in Washington to prevent duplication by competing businesses. Although the trademark will enable the purchaser to recognize the product and the company that makes it, the most important function of the trademark is to increase sales.

Advertisers use trademarks to tie together the various elements of the advertising campaign. This makes it essential that a trademark that is easy to remember and distinctive appear on each product and each advertisement. If the prospective customer has already seen the trademark on television, in magazines, in newspapers, and on billboards, the trademark on the product in the store will be more meaningful because of previous associations. Of course, the manufacturer hopes that these will be pleasant associations to influence the customer to buy.

A trademark may be a picture, a design, a number, a word or words, and a letter or letters. Pictures are usually the easiest to remember while words are the most difficult to recall. If a trademark helps the customer to identify the product and makes purchasing easier, it is of value. In order for a trademark to continue to stimulate customers, it must be kept up to date at all times.

HANDOUT #1 - SECTION 2

I. A trademark is ______________________________

II. On the second page of HANDOUT #1 - SECTION 2 there are thirty-one trademarks. Based on the standards below rate the trademarks and give the name of the product and/or the company for each. If the trademark is a picture, place a "1" in the evaluation column, etc.

1 = Picture	3 = Number	5 = Word or Words
2 = Design	4 = Letter or Letters	

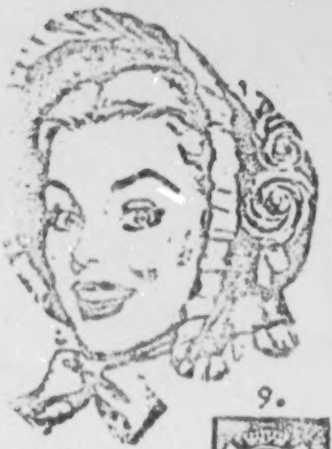
If a trademark contains more than one of the above standards, use the lowest number of the two standards.

TRADEMARK	EVALUATION	PRODUCT OR COMPANY NAME
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		
21.		
22.		
23.		
24.		
25.		
26.		
27.		
28.		
29.		
30.		
31.		

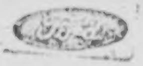
III. The most important function of a trademark is ______________________________

HANDOUT #/ - SECTION 2 (Continued)

1.



2.



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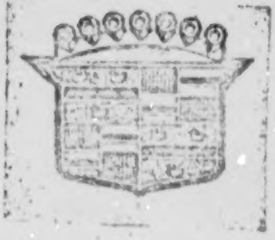

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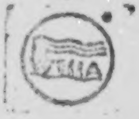
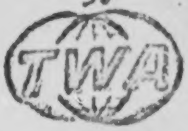
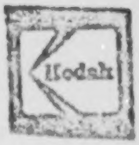


71 5.



6.



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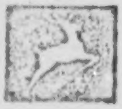
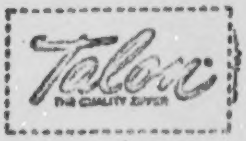
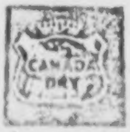


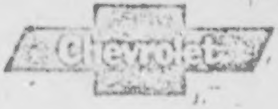
8.


Talon
THE QUALITY ZIPPER

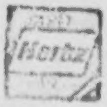
9.



10.



11.



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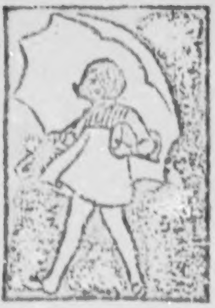
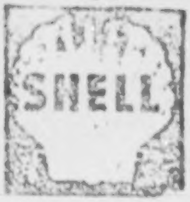
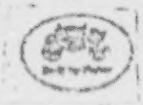


13.



14.



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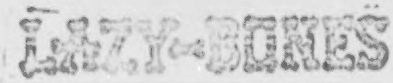

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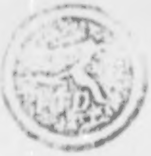

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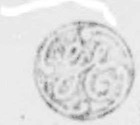

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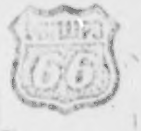

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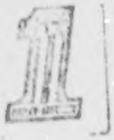

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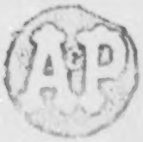

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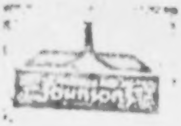

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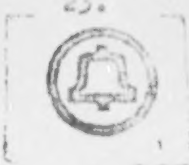

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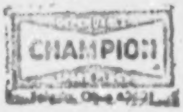
25.



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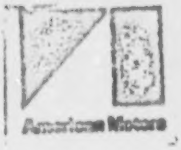
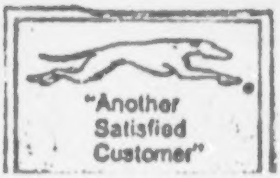
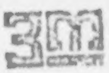

American Motors

27.


"Another
Satisfied
Customer"

28.



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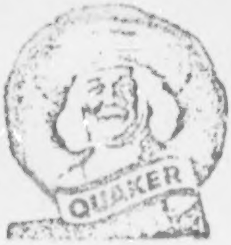

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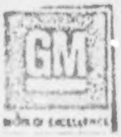

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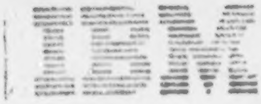

HANDOUT #1 - SECTION 2 (Key)

I. A trademark is a distinctive, identifying symbol of a product.

II.

Trademark Number	Evaluation	Product or Company Name
1.	1	Blue Bonnet Margarine
2.	2 (5)	Ford Motor Company
3.	2	Chrysler Motors
4.	2 (5)	Wella Shampoo
5.	2 (5)	Trans World Airlines
6.	2 (5)	Kodak (Cameras and Film)
7.	1	White Stag (Clothing)
8.	5	Talon Zipper
9.	1,(2)	Canada Dry Ginger Ale
10.	2 (5)	Chevrolet
11.	2 (5)	Hertz (Rent A Car)
12.	1	Morton Salt
13.	1,(2)(5)	Shell Oil Company
14.	1 (5)	Fisher
15.	2 (5)	Shoes
16.	2,(4,5)	Simmons Mattress
17.	1, (2)	Floral Telegraph Delivery
18.	2, (4)	General Electric
19.	2, (3,5)	Phillips 66
20.	2, (3,5)	Harley, Davidson Motorcycles
21.	2, (4)	A & P
22.	1, (5)	Howard Johnson's
23.	1, (2)	Bell Telephone
24.	4, (5)	General Foods
25.	2, (5)	Champion Spark Plugs
26.	2, (5)	American Motors
27.	1, (5)	Greyhound Bus
28.	3, (4)	3 M Company
29.	1, (5)	Quaker Products
30.	4, (5)	General Motors
31.	2, (4)	International Business Machines

III. The most important function of a trademark is to increase sales.

HANDOUT #1 - SECTION 3

I. Locate a trademark that meets each of the following standards and paste it on the right.

Picture -

Design -

Number -

Letter -

Words -

II. Design a trademark that meets each of the following standards and give the name of the product or company that it represents.

Picture -

Design -

Number -

Letter -

Word -

HANDOUT #1 - SECTION 4

A slogan is a phrase or a short sentence that can be repeated word for word. An identification of the product, a description of the product, or a promise of a benefit to the purchaser is usually included in the slogan. In some cases two or more of these characteristics are combined. To be effective a slogan needs to contain at least two or three of the following features.

1. It needs to be brief and to the point.
2. It needs to make a suggestion.
3. It needs to be easily remembered.
4. It needs to be related to the product.
5. It needs to be catchy.
6. It needs to be descriptive and colorful.

Since slogans are more successful in verbal media, they need to be easy to say and easy to remember.

Slogans are used in conjunction with other sales promotion tools to increase sales in advertising campaigns. Advertisers use the slogans to keep the name and image of the product before the public. In order for a slogan to be remembered and repeated it needs to be before the public with some degree of regularity over a long period of time.

Many writers use figures of speech in slogans to add color, variety, humor and conciseness. A figure of speech is a sentence or phrase in which words are used to give a special effect. Oftentimes, the word is not used in its true meaning. A simile, which is a comparison using either like or as, is the most often used figure of speech. "Winston's taste good like a cigarette should" is an example of a simile used as a slogan.

HANDOUT #1 - SECTION 5

I. A slogan is ____

____

II. Analyze the slogans below according to the standards given. If the slogan meets a standard, place a check in the appropriate column. Give the name of the product or the company.

	SUGGESTIVE	BRIEF	CATCHY	EASILY REMEMBERED	IDEA RELATED TO PRODUCT	DESCRIPTIVE	PRODUCT OR COMPANY
1. "Try it, you'll like it."							
2. "Ooooh! That's a soft!							
3. "Sail with the Pilot."							
4. "Ford's got a better idea."							
5. "Cheese that goes crunch."							
6. "Things go better with Coca Cola."							
7. "You're in the Pepsi Generation."							
8. "Get away from it all on a Honda."							
9. "I'd walk a mile for a Camel."							
10. "Longer . . . yet milder."							
11. "It cleans like a million tiny scrub brushes."							
12. "Denta-Creme is for dentures."							
13. "Come to where the flavor is."							
14. "It gets the red out."							
15. "It beats the Sunday sunburn."							
16. "You've come a long way baby."							
17. "Beautiful tan today . . Young looking skin tomorrow."							
18. "Taste me! Taste me!"							
19. "Breakfast without orange juice is like a day without sunshine."							
20. "Flavor fit for a king."							
21. "I can't believe I ate the whole thing."							

III. The most important function of a slogan is ______________________________

HANDOUT #1 - SECTION 5

I. A slogan is a phrase or a short sentence that can be repeated word for word.

II. Analyze the slogans below according to the standards given. If the slogan meets a standard, place a check in the appropriate column. Give the name of the product or the company.

	SUGGESTIVE	BRIEF	CATCHY	EASILY REMEMBERED	IDEA RELATED TO PRODUCT	DESCRIPTIVE	PRODUCT OR COMPANY
1. "Try it, you'll like it."	X	X	X	X		X	Alka-Seltzer
2. "Ooooh! That's a soft!"	X	X		X	X	X	Sta-Puf
3. "Sail with the Pilot."		X	X	X			Pilot Life
4. "Ford's got a better idea."	X	X	X	X			Ford
5. "Cheese that goes crunch."	X	X	X	X		X	Cheetos
6. "Things go better with Coca Cola."	X	X	X	X		X	Coca Cola
7. "You're in the Pepsi Generation."	X	X	X	X		X	Pepsi
8. "Get away from it all on a Honda."	X	X	X	X	X		Honda
9. "I'd walk a mile for a Camel."	X	X	X	X			Camel
10. "Longer . . . yet milder"		X	X	X		X	Pall Mall
11. "It cleans like a million tiny scrub brushes."	X	X	X		X	X	Polident Cleanser
12. "Denta-Creme is for dentures."	X	X		X	X	X	Dentu-Creme
13. "Come to where the flavor is."	X	X	X	X			Marlboro
14. "It gets the red out."	X	X	X	X	X	X	Visine
15. "It beats the Sunday sunburn."	X	X					Solarcaine
16. "You've come a long way baby."	X	X	X	X			Virginia Sl
17. "Beautiful tan today . . . Young looking skin tomorrow."	X	X			X	X	Coppertone
18. "Taste me! Taste me!"	X	X	X	X	X	X	Doral
19. "Breakfast without orange juice is like a day without sunshine."	X				X	X	Florida Oranges
20. "Flavor fit for a king."	X	X		X	X	X	Imperial
21. "I can't believe I ate the whole thing."			X	X	X	X	Alka Seltzer

III. The most important function of a slogan is to increase sales.

HANDOUT #1 - SECTION 6

I. Find three slogans that have at least three of the qualities listed below: (brief, catchy, easily remembered, idea related to product, suggestive, descriptive)
Identify the qualities in each slogan.

1.

2.

3.

II. Write 2 original slogans that meet at least three of the above standards for slogans. Identify the standards in your original slogan.

1.

2.

III. A simile is ____.

IV. Turn back to Handout #1 - SECTION #2 - and locate the slogans in that group that are similes. Record them here.

V. Locate an additonal slogan that is a simile.

VI. Write a slogan that is a simile.

APPENDIX H

Sample Page From Competency Survey Form

CARPENTRY COMPETENCY SURVEY FORM

Name of Firm ____________________ Address ____________________

Name of Person Completing Form ____________________ Position ____________________

Job Title ____________________ Number of People Employed (by job title) ____________________

DIRECTIONS: (1) Please check how often people who are employed in this trade are required to perform the following task in the designated column opposite each competency.

(2) Please feel free to change the wording of any competency statement and add other competencies which should be included in the instructional program.

I Orientation

	Frequency of Use					
II Using hand tools for construction.	Daily	Once a week	Once a month	Once every 3 months	Never	
1. Read and use correctly a zig-zag rule, tape and combination square to measure stock.						
2. Copy and transforing angles using a sliding T Bevel						
3. Read rafter scale and check for squareness of corner, and stock.						
4. Checking a vertical wall for plumbness and checking a flat surface for (levelness).						
5. Using the hand saw to cut stock.						
6. Using the keyhole saw to cut stock.						

APPENDIX I

Sample Competency Statements

MECHANICAL DRAFTING

COMPETENCY STATEMENTS:

UNIT I. PICTORIAL DRAWING

1. Draws an isometric illustration of a cube using the principles of isometric projection.
2. Draws an isometric view of an object that has inclined planes.
3. Knows how to select the proper isometric axis for illustrating an object.
4. Draws an isometric view of an object that has a circular plane.
5. Draws an isometric view of an object that has curved surfaces.
6. Draws and constructs offset measurements in an isometric illustration.
7. Draws an oblique illustration of a cube using the principles of oblique projection.
8. Draws an oblique view of an object that has angles and inclined surfaces.
9. Draws an oblique view of an object that has circular planes.
10. Distinguishes between cabinet and cavalier drawings.

UNIT IV. CONSTRUCTS A 6 TO 8 STRETCHER BRICK WALL

1. Sets up work area.
2. Determines wall location.
3. Spreads mortar and butters brick.
4. Lays brick by forehand and backhand methods using eye alignment.

UNIT V. STRUCTURAL BONDING OF COMPOSITE MASONRY WALLS

1. Knows the principles involving structural bonding, using the overlap method of masonry units.
2. Knows how to tie two or more wythes of masonry together with common metal ties.
3. Understands how the principle of adhesion of grout contributes to sturctural bonding in a cavity wall.

UNIT VI. MASONRY UNIT POSITIONS AND THE FIVE FREQUENTLY USED PATTERN BONDS IN MASONRY

1. Identifies the soldier, rowlock, header, and stretcher positions of masonry units in a wall.
2 Recognizes the following bonded wall designs:
   - a. Stretcher
   - b. Common
   - c. Flemi
   - d. Englis

APPENDIX J

Sample Unit Task Package

UNIT PACKAGE VII: CONSTRUCTING A BRICK WALL USING APPROPRIATE PATTERN BONDS

PREREQUISITES: UNIT I, TASK PACKAGE 1, 2 and 5; UNIT IV, TASK PACKAGE 1; UNIT V, TASK PACKAGE 1; UNIT VI, TASK PACKAGE 2; UNIT VII, TASK PACKAGES 1 - 6

RATIONALE:

The skilled mason is called upon to construct numerous bonds and wall patterns and each requires great skill and care. Your future success as a mason will depend on your ability to construct the various brick walls developed for this unit as well as learning to use the many wall patterns; you will develop the manipulative skills involved in laying up a brick wall in performing the every-day task of a brickmason. The success you achieve in the completion of the task packages in this unit will enable you to perform more difficult building tasks later in the course. Continue reading the General Objectives, Specific Objectives and the Learning Activity, which will indicate to you what you are to do and how to proceed in the completion of this unit.

OBJECTIVES:

General:

Upon completion of this unit package you will be able to construct various bonds and wall patterns in a brick wall.

OBJECTIVES (cont'd):

Specific:

Upon completion of the task packages for this unit, you will be able to:

1. Lay up a 4" stretcher wall between established leads, maintaining the following:
    a. 3/8" to 1/2" mortar space between each brick lengthwise.
    b. ± 1/8" for overall height for a given number of courses and wall height.
    c. all brick laid to a line.

    Your performance will be evaluated in accordance with the instructor's checklist.

2. Lay up a 4" return corner in stretcher bond, maintaining the following:
    a. 3/8" to 1/2" mortar space between each brick lengthwise.
    b. ± 1/8" for overall height for a given number of courses and wall height.
    c. squared, leveled and plumbed courses.

    Your performance will be evaluated in accordance with the instructor's checklist.

3. Lay up an 8" stretcher wall between established leads, maintaining the following:
    a. 3/8" to 1/2" mortar space between each brick lengthwise.

OBJECTIVES (cont'd):

b. ± 1/8" for overall height for a given number of courses and wall height.

c. all brick laid to the line.

d. install metal ties in mortar.

Your performance will be evaluated in accordance with the instructor's checklist.

4. Lay up an 8" return angle corner lead in stretcher bond maintaining the following:

a. 3/8" to 1/2" mortar space between each brick lengthwise.

b. ± 1/8" for overall height for a given number of courses and wall height.

c. all courses squared, leveled, and plumbed.

d. install metal ties in mortar.

Your performance will be evaluated in accordance with the instructor's checklist.

5. Lay up two 4" x 12" pilasters in an 8" stretcher wall between established leads, maintaining the following:

a. 3/8" to 1/2" mortar space between each brick lengthwise.

b. ± 1/8" for overall height for a given number of courses and wall height.

c. all brick in wall laid to a line.

d. all pilaster brick leveled and plumbed.

OBJECTIVES (cont'd):

Your performance will be evaluated in accordance with the instructor's checklist.

6. Lay up an 8" intersecting stretcher wall between established leads maintaining the following:
   a. 3/8" to 1/2" mortar space between each brick lengthwise.
   b. ± 1/8" for overall height for a given number of courses and wall height.
   c. all brick in main wall laid to a line.
   d. all brick in the short intersecting wall squared, leveled and plumbed.
   e. install metal ties in mortar.

   Your performance will be evaluated in accordance with the instructor's checklist.

7. Lay up an 8" common bonded wall between established leads, maintaining the following:
   a. 3/8" to 1/2" mortar space between each brick lengthwise.
   b. ± 1/8" for overall height for a given number of courses and wall height.
   c. all brick laid to a line.

   Your performance will be evaluated in accordance with the instructor's checklist.

OBJECTIVES (cont'd):

8. Lay up a 10" cavity wall, using stretcher bond maintaining the following:
    a. 3/8" to 1/2" mortar space between each brick lengthwise.
    b. ± 1/8" for overall height for a given number of courses and wall height.
    c. all brick laid to a line.
    d. ± 1/2" for width of wall.

    Your performance will be evaluated in accordance with the instructor's checklist.

LEARNING ACTIVITY:

In order to complete this unit successfully you should begin your work on Task Package 1, and then proceed to complete each package in order until you have finished the total of eight packages in this unit. You will observe that all of the packages have a prerequisite; and, in constructing the walls, each has a degree of difficulty greater than the one before. In the packages you will be asked to view a sound-slide program, read the assignments, and construct the wall following these procedure directions.

The number and names of the task packages included in this unit are as follows:

BM-VII

LEARNING ACTIVITY (cont'd):

TASK PACKAGE 1: LAYING UP A 4" STRETCHER WALL

TASK PACKAGE 2: LAYING UP A 4" RETURN CORNER LEAD

TASK PACKAGE 3: LAYING UP AN 8" STRETCHER BRICK WALL

TASK PACKAGE 4: 8" RETURN ANGLE CORNER LEAD

TASK PACKAGE 5: 4" x 12" PILASTER IN AN 8" STRETCHER WALL

TASK PACKAGE 6: AN 8" INTERSECTING STRETCHER WALL

TASK PACKAGE 7: 8" WALL IN COMMON BOND

TASK PACKAGE 8: 10" CAVITY WALL IN STRETCHER BOND

Proceed with your work as outlined above and when you are ready for the unit evaluation, contact your instructor.

APPENDIX K

Unit Test

DA-IV

POST TEST

UNIT IV: FOUNDATION AND FOOTING DETAILS

Student________________________________ Section_________________Date__________

DIRECTIONS for MATCHING TEST:

Match the statements in the right-hand column with the word they describe in the left-hand column. Place the letter from the matched phrase in the space provided in front of the word in the left-hand column.

______ 1. Foundation

______ 2. Footing

______ 3. Concrete

______ 4. Foundation wall

______ 5. Pier and columns

______ 6. Anchor bolts

______ 7. Sills

______ 8. Girder

______ 9. Joist

______ 10. Cripples

a. Provides the base for attaching the exterior walls to the foundation.

b. Supports the load of the building above the ground line and transmits the weight of the house to the footing.

c. Provides a level and uniformly distributed support for the structure.

d. Used for footers because it can be poured to maintain a firm contact with the supporting soil.

e. Major horizontal support members upon which the floor system is laid.

f. Part of the floor system that is placed on the girders.

g. Used to raise the floor level without the use of a higher foundation wall.

h. Distributes the weight of the house over a large area.

i. Vertical members usually made of concrete, brick, steel, or wood, which are used to support the floor systems.

j. Are embedded in the top of the foundation and hold the sill to the foundation.

k. Used to prevent attack by termites.

DA-IV

POST TEST (cont'd)

UNIT IV: FOUNDATION AND FOOTING DETAILS

DIRECTIONS for COMPLETION TEST:

Complete the following statements or questions by writing in the appropriate answer in the space (s) provided.

1. List five members of a foundation.

(1) ____________________

(2) ____________________

(3) ____________________

(4) ____________________

(5) ____________________

2. What are the three types of foundations?

(1) ____________________

(2) ____________________

(3) ____________________

3. What is a termite shield used for? ____________________

____

4. What is used to indicate the exact position of the excavation line, footer line, and the foundation wall line. ____________________

____

5. Why does a structure need a foundation? ____________________

____

____

POST TEST (cont'd)

UNIT IV: FOUNDATION AND FOOTING DETAILS

Student________________________ Section____________ Date__________

DIRECTIONS for PERFORMANCE TEST:

Before beginning your test, study the standards in the instructor's checklist.

1. Draw a foundation plan.
   a. Obtain a sheet of 8 1/2 x 11 paper from your instructor. He will provide you with the proper layout to use.
   b. Study figure 40-13 on page 280 in Architectural Drafting and Design.
   c. Draw a slab foundation of the plan in figure 40-13.
   d. Follow the directions given in problem one on page 280, disregarding the floor plan in figures 1 - 2.
   e. Dimension the plan, providing notes where necessary.
   f. When you have completed the job, have your instructor evaluate your work according to the standards.

DA-IV

INSTRUCTOR'S CHECKLIST

	Acceptable	Unacceptable
1. Neatness of drawing.		
2. Line quality.		
3. Lettering spaced properly.		
4. Lettering legible.		
5. Accuracy of drawing.		
6. Completeness of dimensions.		
7. Placement of dimensions.		
8. Correct foundation drawn.		
9. Foundation placed correctly for support of the structure.		

APPENDIX L

Instructor's Performance Checklist

VOCATIONAL SKILLS RECORD

CLUSTER - DRAFTING - MECHANICAL

NAME____ DATE____________________

CERTIFIED BY__________________________________ TITLE____________________

[L M S] Draws isometric views of objects.

[L M S] Draws offset measurements and sections objects drawn isometrically.

[L M S] Draws oblique illustrations of objects.

[L M S] Draws oblique illustrations using cabinet method.

[L M S] Identifies common uses of threads.

[L M S] Draws unified threads using semi-conventional method.

[L M S] Draws acme threads using semi-conventional method.

[L M S] Draws square threads using semi-conventional method.

[L M S] Draws threads using simplified and schematic methods.

[L M S] Draws square and hexagonal bolts and nuts.

[L M S] Identifies machine, cap and set screws.

[L M S] Draws cams which use uniform motion.

[L M S] Draws cams which use harmonic motion.

[L M S] Draws cams which use uniformly accelerated motion.

[L M S] Calculates and draws tooth profile of spur gears.

[L M S] Calculates and draws spur gears using simplified method.

[L M S] Calculates and draws spur gears using conventional method.

[L M S] Draws bevel gears using simplified method.

[L M S] Draws worm gears using simplified method.

[L M S] Constructs prisms using parallel line development.

[L M S] Constructs pyramids and cones using radial line development.

[L M S] Constructs transition pieces by triangulation.

[L M S] Constructs line, bar, and pie charts.

[L M S] Draws simple detailed working drawings.

[L M S] Draws simple assembly working drawings.

[L M S] Identifies basic shop processes.

[L M S] Identifies basic operations performed on drill press, lathe, and milling machine.

[L M S] Draws machine shop layouts to scale.

General Attitude - [L M S] Industrious and energetic
[L M S] Cooperative with instructors and associates
[L M S] Dependable
[L M S] Punctual

Code - L - Limited skill requires supervision.
M - Moderate skill requires minimum supervision.
S - Skilled works independently

APPENDIX M

Student Progress Chart

STUDENT ______________________ PERIOD ______________________ CLASS ______________________

STUDENT PROGRESS CHART

PKG.	UNIT	UNIT	UNIT	UNIT	UNIT	UNIT	UNIT	UNIT	UNIT	UNIT	UNIT	UNIT	UNIT	UNIT	UNIT
1.															
2.															
3.															
4.															
5.															
6.															
7.															
8.															
9.															
10.															
11.															
12.															
13.															
14.															
15.															

APPENDIX N

Vocational Skill List

[L M S] Reads and measures with folding rule, layout tape, and combination square.
[L M S] Copies and transfers angles using sliding T-bevel.
[L M S] Reads linear scales and checks squareness using framing square.
[L M S] Checks wall for plumbness and surface for levelness.
[L M S] Cuts stock with crosscut saw.
[L M S] Cuts stock with keyhole saw.
[L M S] Cuts trim with coping saw.
[L M S] Operates the miter box saw to make square and angular cuts.
[L M S] Cuts metal with the hacksaw.
[L M S] Cuts stock using block and jack planes.
[L M S] Chops and cuts stock with carpenter's hatchet.
[L M S] Cuts stock using wood chisels.

[L M S] Bores holes with brace using auger and expansion bits.
[L M S] Selects and uses standard screwdriver & spiral ratchet (yankee) screwdriver.
[L M S] Selects and uses hammers in construction.
[L M S] Crosscuts and rips with electric circular saw.
[L M S] Cuts curves and angles with electric jig saw.
[L M S] Trims and cuts joints with portable router.
[L M S] Planes with electric plane.
[L M S] Drills holes with electric hand drill.
[L M S] Sands with portable belt and vibrating sanders.
[L M S] Cuts angles with electric miter box.
[L M S] Crosscuts and cuts dados with the radial arm saw.
[L M S] Planes stock to thickness on planer.

[L M S] Rips and crosscuts with table saw.
[L M S] Cuts angles and curves on band saw.
[L M S] Planes stock on edge using jointer.
[L M S] Smoothes edges and cuts patterns on wood shaper.
[L M S] Drills, countersinks, counterbores, and drum sands on drill press.
[L M S] Identifies & calculates cost of lumber.
[L M S] Identifies and uses fasteners and adhesives.
[L M S] Interprets & understands residential building construction plans and schedules.
[L M S] Sets up batter boards and squares house.
[L M S] Understands basic construction of bathroom cabinet.
[L M S] Understands basic construction of kitchen overhead cabinet.

[L M S] Understands basic construction of kitchen base cabinet and installs laminated plastic top.
[L M S] Cuts and installs floor beams, joists, bridging and flooring.
[L M S] Selects and cuts full length and cripple wall studs.
[L M S] Constructs wall corners.
[L M S] Constructs T's for intersecting wal
[L M S] Constructs window and outside door headers.
[L M S] Cuts, marks, & installs top plates.
[L M S] Cuts & installs bracing in house.
[L M S] Cuts and installs ceiling joists.
[L M S] Cuts and installs purlins.
[L M S] Constructs headers for inside doors and case openings.
[L M S] Lays out and cuts common rafters.
[L M S] Marks off and installs ridge board.

M S] Cuts and installs roof bracing.
M S] Cuts, builds and installs roof truss.
M S] Cuts and installs framing in gable.
M S] Builds and installs louver.
M S] Cuts and installs roof sheathing.
M S] Cuts and installs felt paper.
M S] Marks off roof & installs shingles.
M S] Cuts and installs insulation board.
M S] Cuts and installs wall sheathing.
M S] Cuts and installs siding.
M S] Cuts and installs fascia board.
M S] Cuts & installs plywood boxing in eaves.
M S] Cuts & installs plywood for sealing the rake.
M S] Cuts and installs bed molding between eave and sidewall.

[L M S] Cuts and installs corner boards or metal corners.
[L M S] Installs window units as specified on drawing.
[L M S] Installs outside entrance door frame.
[L M S] Hangs door, using butt hinges.
[L M S] Installs entrance lockset.
[L M S] Cuts, installs and staples insulation batts.
[L M S] Cuts and installs sheet rock.
[L M S] Cuts and installs wood panels.
[L M S] Cuts and installs ceiling tile.
[L M S] Cuts and installs hardwood flooring.
[L M S] Cuts & installs underlayment for receiving tile or carpet.
[L M S] Cuts and installs crown molding.
[L M S] Cuts and installs door jambs.

[L M S] Cuts and installs door trim.
[L M S] Hangs interior doors & installs locks.
[L M S] Installs sliding or bi-fold doors.
[L M S] Cuts and installs window trim.
[L M S] Cuts and installs baseboard and shoe molding
[L M S] Cuts and installs metal threshold.

General Attitude

[L M S] Industrious and energetic
[L M S] Cooperative with instructors and Associates
[L M S] Dependable
[L M S] Punctual

Code

L - Limited skill requires supervision.
M - Moderate skill requires minimum supervision.
S - Skilled works Independently.

VOCATIONAL SKILLS RECORD

CLUSTER – CARPENTRY

99

NAME ____________

DATE ____________

CERTIFIED BY ____________

TITLE ____________

SANFORD CENTRAL HIGH SCHOOL

APPENDIX O

Student Survey Form

STUDENT SURVEY FORM

Circle One Response

1. I like having the responsibility for learning.

ALWAYS SOMETIMES NEVER

2. I like this new system of learning more than listening to an instructor lecture.

ALWAYS SOMETIMES NEVER

3. I find it helpful to have the statement of the reasons for learning (Rationale).

ALWAYS SOMETIMES NEVER

4. I find it helpful to have the statement of what I am expected to do (Objective).

ALWAYS SOMETIMES NEVER

5. I am able to read and understand the instructional package.

ALWAYS SOMETIMES NEVER

6. I learn more from the sound-slide programs than the reading references.

ALWAYS SOMETIMES NEVER

7. I like to be able to learn at my own speed.

ALWAYS SOMETIMES NEVER

8. Upon completion of a task package, I feel confident that I have achieved the Objective

ALWAYS SOMETIMES NEVER

9. Considering all things about this new instructional system, I think it is a more effective method of learning.

ALWAYS SOMETIMES NEVER

10. What do you like most about this new approach?

____

____

11. What do you dislike most about this new approach?

____

____

APPENDIX P

Staff Development Plan

STAFF DEVELOPMENT PLAN*

In-Service Training in Individualized Instruction

This staff development plan has been prepared for use in conjunction with the curriculum materials developed in the summer 1972 Sanford Research Project, Sanford Central High School, Sanford, North Carolina. The curriculum materials were designed to cover the first year of instruction in the occupational career clusters of drafting, masonry, metals, and carpentry. The instructional program at Sanford Central High School is based on two hours of instruction per day, five days per week.

The Sanford curriculum has been designed in an individualized instruction format, enabling each student to pursue specific learning objectives at his own rate of speed. Since this approach is totally different from the group instruction to which many teachers are accustomed, the staff development plan focuses on this aspect of the program. In the in-service workshops outlined below, the instructor should be able to develop those skills necessary for management of the individualized curriculum.

The plan is to be used as an in-service training program for the instructional staff. Component parts of the specialized staff development plan are as follows:

I. ORGANIZATION -- the overall structure and requirements for conducting a staff development program.

II. IMPLEMENTATION -- the structure and manner by which the in-service staff development plan is to be conducted.

III. CONTENT -- the methodology, objectives materials, and other information needed to familiarize staff who will be administering an individualized instructional system.

IV. EVALUATION -- methods of assessing the effectiveness of the in-service training program.

I. ORGANIZATION OF IN-SERVICE PROGRAM

A. PROGRAM ACCEPTANCE

1. Attitudinal Dimension

One of the essential ingredients for activating the process of change from one type of instructional mode to another is the creation of a climate for such change through development of proper attitudes regarding the acceptance of the program. The overall success of any new program depends in large part upon those who are delegated the responsibility to see that the program is carried out. In order to make certain that this or any other innovative program is given a fair chance for success, it must be nurtured in an atmosphere of positive thinking and enthusiasm. Before beginning the task of implementing an individualized program, the administrator and staff personnel who will become involved with the program must be given a sufficient amount of information to understand its objectives and methods and to develop a positive attitude toward it. The philosophy of individualizing instruction must be accepted by everyone involved before a specific plan or proposal is developed.

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*Submitted by Educational Development, RCA Service Company, Cherry Hill, New Jersey

2. Methods of Gaining Support

A successful marketing job by the project administrator should result in a staff which is responsive and which has positive attitudes toward making the project a success. The chances for success will be greatly enhanced as a result of having a dedicated and cooperative staff team.

Some methods which an administrator might use in selling the concept of individualized instruction to his staff as well as to his administrators and board members are as follows:

a. Dissemination of written materials which clearly support the position or arguments that he is trying to establish.

b. Visitations to other school systems which have similar types of programs.

c. Employment of experts in the field (consultants) to make presentations for the administrative and instructional staff.

d. Assistance from state education department personnel.

It is suggested that if the program does not have the strong solid support of the people who will become involved, as well as support from the superintendent and board, it should be deferred until such support becomes available.

3. Developing Program Proposal

When it has been agreed that the philosophy of individualization is desirable, the next step is to develop a plan or proposal which describes how the program is to function. The development of this plan should involve key staff people who will eventually be involved in implementation. In order to anticipate reaction from administrators and board members, the proposed program should be written so that the content includes the following:

(1) Goals and objectives of the program
(2) Administration of the program
(3) Staff requirements
(4) Procedure for implementation
(5) Program cost--facilities, equipment, curriculum, hardware, and software
(6) Methods of evaluating the program

The plan should be a modest one which will not overwhelm the board, teachers, or community.

Assistance in the preparation of the proposal can be obtained from an experienced consultant who can supply local school system personnel with additional information and alert them to the advantages and disadvantages of various types of programs.

B. STAFF FOR IN-SERVICE PROGRAM

Having achieved the necessary support and approvals to proceed with the implementation of an individualized system of instruction, the next step is to put together the organizational structure to deal with the in-service staff development program.

1. Project Administrator

The project administrator of the in-service staff development program should be clearly designated; his responsibilities should be established, and he should be given ample time to plan and conduct the program. It is suggested that the project administrator plan to visit school systems which have had successful individualized instructional programs in operation and spend a sufficient amount of time with the project administrator, staff, and students. The time he spends in these schools will be highly valuable in that he will get an opportunity to observe an actual operation and see first-hand how an operating program functions as well as being able to ask questions pertinentto development and implementation of his own program.

2. Specialists

The assistance of qualified people is essential in conducting an effective in-service program. In a large school system where a similar program is already in operation, assistance may be obtained from within the school system. However, in a system that does not have people who have this kind of experience, it is necessary to hire outside consultants who have the expertise to assist in the in-service staff training program. Individuals who are brought in to conduct an in-service program are generally better accepted by local staff because of the demonstrated expertise and because of background and experiences in a variety of schools offering this kind of program. These individuals bring with them experiences beyond those of the local staff and can contribute greatly to the implementation of the program.

The qualifications for such a person or persons are as follows:

a. Individualized Instructional Systems Specialist -- a person who has a thorough understanding of how an individualized system operates, sound knowledge of curriculum development, ability to develop individualized learning packages, understanding of administrative and staff requirements, ability to design and write a comprehensive proposal with detailed cost analysis, and an interest in the particular local program.

b. Curriculum Content Specialist -- a person who has knowledge of curriculum development, understanding of behavioral objectives, previous experience in working with an individualized instructional system, and a knowledge of occupational education.

It is suggested that the in-service staff development workshop have at least one person with the above-mentioned qualifications to assist the project administrator in conducting the workshop. If there are more than ten participants in the in-service workshops, it is suggested that the workshop have an individualized instructional systems leader and the necessary number of curriculum content specialists to enable teachers to work in small groups with a ratio of one specialist for every six teachers. The size of the small discussion work group has proven to be an effective means of getting everyone to participate actively while also allowing for individual attention and evaluation by the group leader.

A careful assessment of the local staff should be made in order to determine whether certain individuals have the expertise required for the program. In a large school system, assistance may be obtained from people in other schools with the system who have the required expertise.

II. IMPLEMENTATION OF THE IN-SERVICE PROGRAM

A. TIME ALLOTMENT

Perhaps the single most essential element in implementing the program effectively is additional planning and training time for teachers and administrators. Staff training and planning time should be initiated well before an attempt is made to implement even pilot programs. Ideally, the in-service program should be conducted prior to the start of the new school year. It is much easier to begin a new program at the start of the year rather than trying to begin after school has started.

It is suggested that the staff be given an ample amount of time not only to attend the staff development workshop but also to make necessary changes such as ordering textbooks and multi-media materials, developing slides, altering physical facilities, obtaining equipment and supplies, and preparing other materials. It is suggested that at least one month be given to the staff member for this entire task. The extent of multi-media or other new materials to be incorporated in the individualized instructional system will determine the need for additional preparation time needed for the staff.

Having designated a particular starting date with the allotted time for the in-service workshop, the project administrator should prepare a written hand-out which clearly establishes the purpose, content, and schedule of events which are to take place during the workshop. The program goals should be clearly spelled out so that the participants know exactly what the expected outcomes are. It is suggested that at least a week be devoted to the in-service workshop. In scheduling the topics of the workshop, program activity should be arranged to enable the staff to work both in small groups and individually.

B. PLANNING THE IN-SERVICE PROGRAM

Prior to conducting the in-service workshop, a comprehensive plan should be written to outline what is to be accomplished during the workshop. The working plan should clearly set forth the objectives of the program and other pertinent information. It should also contain a flow chart of how the program will be organized and conducted. This material should be assembled and disseminated to the participants of the workshop so that they may have an opportunity to study it before starting the actual in-service staff development program.

Additional instructional materials are required in most schools to implement individualized learning. Therefore, additional resources must be obtained or existing resources must be reallocated to purchase these materials, as well as for consultant services and necessary facility alterations. To assist the project administrator in conducting the in-service workshop, it is suggested that consultant services be purchased in such areas as writing behavioral objectives, developing and writing learning packages, developing multi-media materials, and implementing the instructional program. The consultants selected should have the capability and expertise to stimulate the participants of the workshop and alert them to new procedures.

C. INSTRUCTIONAL PROCEDURES IN THE WORKSHOP

Depending upon the number of teachers that are to be involved in the in-service workshop, it is suggested that the project administrator plan his particular implementation program to utilize a variety of instructional approaches, including large group instruction, small group instruction, and individual teacher assistance sessions. Since there are certain problems which probably will occur regarding implementation that are peculiar to a given area, the project administrator should allocate time to meet on an individual basis with staff members in seeking solutions to these problems.

Since this particular in-service plan deals with converting the staff from group instruction to individualized instruction, the format of the in-service workshop should utilize an individualized approach. The over expenditure of time in lecturing (group instruction) to staff should be avoided. After the introductory session, the group should be broken into smaller groups using the curriculum content specialists as group leaders so that the staff members may begin familiarizing themselves with subject matter and approaches they will have to master in order to implement the individualized instructional system successfully. The project administrator should consult individually with teachers to make certain that they understand the concepts and are making satisfactory progress.

Part of the implementation plan should focus on the actual staff involvement with the unit and task learning packages. The staff should be given a set of learning packages in their given areas of the curriculum and have the opportunity to study and proceed through the packages as a student would. Having members of the staff play the part of a student will enable them to experience first-hand how a student might react to this individualized approach. Individual staff members will perform activities as prescribed in both unit and task packages. Upon completion, the participant will evaluate his own progress. The success of the individualized instructional system will be determined by teachers who are charged with the responsibility for implementing the program. Therefore the staff must understand the system and be able to provide proper direction to students.

D. OPERATIONAL CHECKLIST

As project administrator, it may be necessary to perform a number of activities and make various arrangements prior to actual starting of the in-service workshop. To assist in this task, the following checklist of questions has been prepared.

1. Has the program proposal been approved?
2. Have arrangements been made to obtain the service of consultants?
3. Has a definite starting date and length for the workshop been established?
4. Has the location and needed physical facilities been established?
5. Has a detailed flow-chart been prepared indicating when activities are to occur?
6. Have the participants of the in-service workshop been given sufficient notice to make necessary preparations?
7. Has a document been prepared detailing the following:
    a. goals and objectives of the workshop
    b. expected outcomes of the workshop
    c. daily schedule of activities
    d. content of the workshop
    e. evaluation of the workshop

8. Has necessary equipment, materials, multi-media, and software been procured or rented?
9. Have arrangements been made for staff visitations to other school systems?
10. Has additional money been allocated to cover the cost of the in-service workshop?
11. Have arrangements been made to hire clerical help for the workshop?
12. Have arrangements been made to hire personnel to develop multi-media?
13. Have all items related to the cost of conducting the in-service workshop been identified and budgeted to provide a total cost? Has the following been accounted for?
    a. project administrator and staff salaries
    b. travel expense
    c. consultant services fee
    d. equipment and materials rental fee
    e. equipment, multi-media, and materials cost
    f. duplication of instructional material cost
    g. clerical and support personnel salaries
    h. telephone, postage, and miscellaneous expense
14. Has additional time been allocated for individual staff members to implement program in their own area?
15. Lastly, have the necessary stimuli been present to generate enthusiasm and a desire to make it a successful project?

III. CONTENT OF THE IN-SERVICE PROGRAM

A. PHILOSOPHY AND GOALS OF INDIVIDUALIZED INSTRUCTIONAL PROGRAM

Since an in-service plan is designed for the purpose of bringing about change, it is essential to formulate a statement of philosophy to set forth the goals of the program. The statement and the goals identified will serve as the foundation for the program. A typical statement might be as follows:

> For generations educators have been trying to adjust the student to the curriculum rather than the curriculum to the student. The result has been an inability to deal with individual differences among students because of reliance on traditional group instruction methods. "Individualized instruction" is an attempt to develop a delivery system of instruction by which we will take into consideration a student's individual differences in ability, interests, and learning goals.
>
> The major goals of the individualized instructional system are to provide the best learning situation possible for all students and to help each student plan his own educational development. These goals might be stated as follows:
> a. to recognize each student's educational needs by providing him with the opportunity to learn and master material at his own rate.
> b. to improve the general learning environment of the school.
> c. to enable students to learn, think, and make decisions in today's technological society.

B. COMPARISON BETWEEN INDIVIDUALIZED AND TRADITIONAL SYSTEMS

By comparing an individualized instructional system with a traditional instructional system, it is possible to contrast the different roles that each requires of both teacher and student.

The workshop should make clear to the staff the distinct differences in the new role requirements of both teacher and student in an individualized instructional system. Recognizing that these are new roles to be mastered, ample time and consideration should be given to allow for the proper development of the roles in the most effective and efficient manner.

1. Role of the Teacher--Traditional vs. Individualized

The role of the teacher in a traditional system is to provide instruction to a group of students, using primarily the lecture method of presentation. Although teachers often meet individually to assist the student with his learning, the learning activity proceeds at the rate of the group. In contrast, the individualized system changes the role of the teacher from a dispenser of knowledge and controller of learning to a manager of instruction. The new responsibilities require the instructor to analyze carefully the individual needs of each student, to prepare an instructional sequence geared to the ability of the student, and to diagnose learning problems. The individualized system of instruction frees the teachers from the time spent lecturing a class and enables him to work on an individual basis with each student. In addition, the teacher monitors the individual performance of each student and evaluates his progress with reference to his own individual ability.

2. Role of the Student--Traditional vs. Individualized

The role of the student in the traditional system is to proceed with learning at the rate of the group. In so doing he works on the same assignments as the other students and is required to complete learning units within a specified amount of time. The performance of each student is evaluated not by his ability to learn the material so much as by comparing his learning rate to that of the group.

In the indivdualized instructional system the role of the student is significantly changed. The student no longer proceeds at the group rate but rather proceeds at his own individual rate of learning. Recognizing differences in individual ability, individualized instruction provides the needed flexibility to enable each student to spend the necessary time needed to complete a learning activity. The student in the indidualized approach assumes responsibility for learning by selecting and using the various resources that are available and by being able to assess his performance by self-evaluation.

C. CAREER COMPETENCIES

As with the development of any curriculum materials there must be a starting point from which content is derived to formulate the basis of an instructional program. Since the materials to be used from the Sanford Research Project were related to occupational education, the appropriate starting point for the development of the content was to first ascertain what the particular career competencies were for the various trades that were representative of the occupational programs. The method by which these career competencies were derived was to gather input from four sources: (1) the Sanford instructional staff, (2) the state curriculum guides, (3) the craft advisory committee, and (4) curriculum content specialists from the Education Systems group of RCA Corporation, who were responsible for development of the curriculum in Sanford. The resulting career competencies represent a synthesis of this input.

Career competencies are those theoretical and practical skills a craftsman needs to know and do in an actual job sitution. Since these programs were developed for the Sanford City School System, the career competencies were tailored to fit local employment indigenous to the Sanford area. A list of career competencies has been developed for the areas of carpentry, masonry, drafting, and metals.

D. BEHAVIORAL OBJECTIVES

Having identified the career competencies, the next step was to translate the career competencies into measurable behavioral objectives related to the competency goals. The behavioral objective indicates to the student what he is to do, under what conditions he is to perform, and what the criteria for acceptable performance will be. The behavioral objective is the nucleus of the individualized instructional system in that it determines the type and sequence of learning that will be required by the student to master that ojbective successfully.

While many teachers have some acquaintance with behavioral objectives, these objectives constitute so significant a part of an individualized system that careful attention should be given to the concept and mechanics of setting objectives. A review should be made of types of behavioral objectives written in the cognitive, psycho-motor and affective domains. Depending upon the expertise of the project administrator, it may be desirable to utilize consultants to handle this portion of the in-service training.

There is a great deal of written material available that deals with the writing of behavioral objectives. If the instructional staff is going to be expected to implement this program and to participate in necessary updating and revision, they must have a thorough understanding of what a behavioral objective is, be able to recognize the component parts, and have the ability to write objectives in behaviorally stated terms. The decision as to how far the staff will be able to pursue the development of behavioral objectives will be determined by the amount of time available for the in-service program. It is suggested that at least two days be devoted to the study of behavioral objectives.

List of behavioral objectives were developed in the Sanford Research Project in the occupational areas of metals, drafting, masonry, and carpentry.

E. LEARNING PACKAGES

The Sanford-Research Project used the following format for development of learning packages:

> The learning package system contains two parts: (1) the task package, which deals with the individual behavioral objective, and (2) the unit package, which contains a number of task packages related to given unit of instruction.

The task package contains four basic parts: the Rationale, Objective, Learning Activity, and Learning Practice. The Rationale is a statement which describes what the learning package is about and why it is important for the student to learn this task. The Objective of the task package is stated behaviorally and specifies the observable performance required of the student so that the goal may be adequately evaluated by the student or teacher. The Learning Activity section makes reference to specific source information needed to reach the objective. Reference is made to specific pages in textbooks, manuals, or other reading aids available to the student, as well as to multi-media materials. The Learning Practice of the task package provides the student with an exercise or set of exercises that allows for the practice and application (or "hands-on" experience) required for the behavioral objective. This section also provides the student with a set of directions, tools, materials, illustrations, and other aids needed to practice the required behavior of the objective.

The unit package also contains four parts: the Rationale, Objective, Learning Activity, and Post Test. As in the use of the task package, the Rationale serves as an overview or introduction to the unit and describes what the unit is about. The Objective of the unit package contains a general objective followed by the specific behavioral objectives of the related task packages. The Learning Activity in the unit package provides the student with information on how he is to proceed in the learning sequence and lists the names of all the task packages of the unit. Finally, the Post Test provides the means for measuring the behavioral objectives for all of the task packages comprising the unit. Written tests, performance tests, and combinations of both are used. Where a performance test is used, a form titled "instructor checklist" has been developed to enable both student and instructor to know what the evaluative criteria are.

F. DIAGNOSTIC AND INSTRUCTIONAL PROCEDURES

In addition to understanding the concept of individualized instruction, it is essential for the instructor to develop additional skills in being able to diagnose the needs of the learner and prescribe appropriate learning activities. A means of assessing the individual needs of a student might use a diagnostic procedure comprised of the following elements:

1. Individual performance on standardized tests dealing with basic skills
2. Individual performance on specialized tests in specific areas
3. Consultation with individual's Guidance Counselor
4. Individual performance on teacher prepared pre-tests for instructional units or course
5. Consultation with other teachers
6. Individual student interest.

The results of the diagnostic assessment should produce an individual profile and other data. Instructor then utilizes this input in directing and prescribing the appropriate learning activity.

Although the learning packages are designed to enable the student to evaluate his own performance, the final evaluation must be determined by the instructor.

After the student masters the objective of the task package, he then has the instructor certify his performance. Upon completion, the student is then assigned to another task package or unit package.

The outward appearance of the class using the individualized learning system may appear to be somewhat similar to group instruction. However, a closer look will find students working individually at their own rate of speed, using a variety of written and resource materials, on different learning units. Depending upon the diagnostic profile of students and the number of prerequisites per learning unit, it is possible to have students in the same class working at learning units representing the entire course content.

It should be noted that there is a transitional period from traditional instruction to individualized instruction during which teachers as well as students need time to adjust and become comfortable with their own roles. The most significant adjustment will occur during the first two-to-four weeks. During this time, the project administrator should meet daily with staff to assist them in implementing this system.

IV. EVALUATION OF IN-SERVICE TRAINING

The evaluation component of this plan is intended to furnish direction in being able to assess the effectiveness of the in-service workshop. Since evaluation is an ongoing process, it should not be viewed as a separate activity but rather as a part of the continuous activity of the program. During the course of the in-service workshop, it is assumed that the key points mentioned in this section will be only suggestive of some of the criteria which need consideration.

After reading this section, the project administrator should prepare an evaluation plan to measure the specific curricular areas covered in the in-service workshop. Certainly one of the key points the evaluation plan should focus upon is the assessment of how well the staff understands the goals and objectives of the program which is to be implemented. This section of the workshop curriculum can perhaps best be evaluated by preparing written materials which are self-instructional and which enable participants to respond and evaluate their own progress. In addition to making self-evaluation possible, presentation of the material in this form will provide first-hand experience with the individualized instructional approach. This format will also enable workshop leaders to evaluate the progress of participants in the program.

An assessment of the attitudinal dimension of an in-service workshop will enable your project administrator to gauge whether or not additional training and materials are needed. When certain staff people are not comfortable with the new concept, individual attention should be given to determine the cause of the individual problem. The process of changing attitudes and ideas cannot be accomplished overnight. Changing from the traditional instructional system to the individualized instructional system is a gradual process that requires patience. If staff personnel can be successfully convinced of the value of the program, they in turn will be able to function as initiators and change agents in selling the idea to other staff and students.

The effectiveness of the in-service program can be assessed by asking participants to write behavioral objectives in the cognitive, psychomotor, and affective domains and to develop a sample task and unit package in their respective disciplines. The project administrator can then evaluate the work to assess the individual progress of each staff member.

A requirement of the in-service workshop should be that each individual participant of the workshop prepare a written implementation plan indicating in detail how he will proceed with the task of implementing an individualized instructional program in his respective area.

This plan should contain the following:

a. Student Orientation-- an indication to the student of how the system functions, describing the new roles of the student, teacher, and learning materials.

b. Learning System-- a description of how the student will proceed with his learning activities.

c. Diagnosis and Prescription--identification of how the instructor will be able to diagnose individually the educational needs of the student and to prescribe learning activities.

d. Equipment and Materials--lists of instructional equipment, tools, textbooks, references, and multi-media materials needed for the program, including cost.

Upon completion of the implementation plan by each individual instructor, it is suggested that the respective plans be duplicated for each member of the workshop. The project administrator should then arrange for each individual staff participant to make a presentation to the workshop. After the presentation, the project administrator and other staff participants should critique the plan, pointing out areas where additional clarification and revision are needed. The result of these sessions will be extremely beneficial to the individual staff participant, since he will not only have had the opportunity to develop his own plan and have it critiqued, but he will also have copies of other plans which contain other useable ideas. The overall activity will enable the teacher to assess his readiness in being able to implement the individualized instructional system.

The main goal of education is to provide the best education possible for students. This goal can be achieved by personalizing instruction and meeting the individual interests, needs, aptitudes, and abilities of students.